BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : UNI 13,8 h Edition : 26.06.92 Replaces : 02.92 Test oil : ISO-4113 Combination no. : 0 402 646 923 Injection pump Pump designation : PE6P130A720RS7225 EP type number : 0 412 636 817 Governor Governor design. : RQV300...900PA946 Governer no. : 0 421 813 845 Customer-spec. information Customer : IVECO-UNIC Engine : 8210.42.061 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly **: 1 688 901 105** Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 11.50...12.50

Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 27.0...27.3 100 s: (26.6...27.6) Spread cm3 : 0.6100 s: (1.0) 2nd speed rpm : 300.0Rack travel in mm: 4.4...4.8 Del.quantity cm3/: 1.9...2.5 100 s: (1.5...2.9) cm3 : 1.0 Spread 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 945 1st speed : 8.40...8.60 travel mm 2nd speed rpm : 300 : 1.00...1.40 travel mm 3rd speed rpm : 500 3.30...3.90 travel mm 4th speed rom : 700 : 5.50...5.90 rpm : 1200 travel mm 5th speed travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 935 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 Aneroid pressure h: 900 Del.quantity : 270.0...273.0 1000 : (266.5...276.5)

Firing order

: 1-5-3-6-2-4

: 6.00 Spread cm3

1000 : (10.00)

#### RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.60 rpm : 940...950 Speed

2nd rack travel in: 4.00

Speed rpm: 1015...1045 4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 75...83

Testing:

Speed rpm : 100 Minimum rack trave: 6.10 rpm : 300

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 320...440

Aneroid/Altitude Compensator Test

1st version

Settina

Speed rpm : 500 Pressure hPa : 900

Rack travel mm : 12.60...12.70

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 350

Rack travel in m: 12.00...12.10

3rd pressure hPa : 300

Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 500 Del.quantity cm3/: 285.0...292.0

1000 s: (281.5...295.5)

Aneroid pressure h: -

Speed : 500 rom

Del.quantity cm3/: 202.0...205.0 1000 s: (198.5...208.5)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...165.0

1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.40...4.80 Del.quantity cm3/ : 19.0...25.0

1000 s: (15.0...29.0)

cm3 : 10.00Spread

1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet

: MB Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 926

Injection pump

Pump designation: PE6P12OA32OLS7834-10

EP type number : D 412 626 853

Governor

Governor design. : RQV300...950PA797-19

Governer no. : 0 421 813 901

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 230.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 550

Rack travel in mm: 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.3...6.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.00...1.50 travel mm

2nd speed rpm : 617

: 5.00...5.50 travel mm

rpm : 780 3rd speed

travel mm : 6.10...6.60

rpm : 10094th speed

: 8.30...8.80 travel mm

5th speed rpm : 1092

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 550 Aneroid pressure h: 1200 Del.quantity : 240.0...245.0) 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 990...1000 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1200 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed : 200 rpm Minimum rack trave: 8.50 rpm : 300 Speed Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 950 Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 500 hPa : 1200 Pressure Rack travel mm : 15.20...15.40 Measurement 1/min: 500 Speed

Rack travel in m: 13.80...14.00 START CUT-OUT 1/min : 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 950 Speed Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rpm : 990...1000 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

1st pressure hPa : -

2nd pressure hPa : 250

Rack travel in m: 10.10...10.40

Rack travel in m: 10.60...10.70 3rd pressure hPa : 750

# Note remarks

Test sheet : MB

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 926X

Injection pump

Pump designation : PE6P12OA32OLS7834-10

EP type number : 0 412 626 853

Governor

Governor design. : RQV300...950PA797-19

Governer no.

: 0 421 813 901

Cust. part no. : 0120740502

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 230.0 Rated speed : 1900

# TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

### BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 6.3...6.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50 : 780

3rd speed rpm

travel mm : 6.10...6.60

: 1009 4th speed rpm

travel mm : 8.30...8.80

: 1092 5th speed rpm

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 550 Aneroid pressure h: 1200 Del.quantity : 240.0...242.0 1000 : (237.0...245.0) cm3 : 6.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.40LOW IDLE ! Control lever position degrees: 82...90 Testing: Speed rpm : 200 Minimum rack trave: 8.50 rpm Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rum : 300...500 TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 950 Rack travel in m: 14.90...15.10 3rd speed : 800 rom Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 hPa : 1200 Pressure Rack travel mm : 15.20...15.40 Measurement Speed  $1/\min : 500$ 

1st pressure hPa : -Rack travel in m: 10.10...10.40 2nd pressure hPa : 250 Rack travel in m: 10.60...10.70
3rd pressure hPa : 750
Rack travel in m: 13.80...14.00 START CUT-OUT 1/min : 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 950 Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.001000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rpm : 990...1000 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

Note remarks

Test sheet : SCA

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 927

Injection pump

Pump designation : PE6P12OA32ORS7138

: 0 412 626 822 EP type number

Governor

Governor design. : RQV300...900PA712-7

Governer no. : 0 421 813 913

Customer-spec. information

Customer : SCANTA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle helder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 4.6...5.0

Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.7)

cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

1st speed rpm : 300

: 1.40...1.80 travel mm

2nd speed rpm : 350

travel mm : 1.90...2.50

3rd speed rpm : 650

: 4.70...5.30 travel mm

rpm : 950 4th speed

: 7.90...8.10 travel mm

rpm : 10455th speed

: 9.30...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 100.0...170.0)

Spread cm3: 6.00 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 100...108

Testing:

1st rack travel in: 11.20 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 1010...1040

4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 70...78

Testing:

Speed : 100 rpm Minimum rack trave: 10.00 : 300 Speed rpm

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00 Speed : 330...390 rom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 900

Rack travel mm : 12.20...12.30

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...11.00 2nd pressure hPa : 360 Rack travel in m: 11.80...11.90

3rd pressure hPa : 250

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed : 900 rpm

Del.quantity cm3/: 164.0...172.0 1000 s: (162.0...174.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 125.0...129.0 1000 s: (122.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 940...950

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 270.0...320.0 1000 s: (266.0...324.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet

: MB

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 929

Injection pump

Pump designation: PE6P120A320LS7834-10

EP type number

: 0 412 626 853

Governor

Governor design.

: RQV300...1050PA797

-25

Governer no.

: 0 421 813 924

Customer

Customer—spec. information

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW

: 230.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 24.0...24.2

100 s: (23.7...24.5)

Spread

cm3 : 0.6

100 s: (0.9)

2nd speed

rpm : 300.0

Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed travel mm

rpm : 300 : 1.00...1.50

2nd speed

rpm : 608

travel mm

: 4.80...5.30

3rd speed travel mm

rpm : 820

4th speed

: 5.90...6.40 : 1108 rpm

travel mm

: 8.30...8.80

5th speed

Speed

rom travel mm

: 1183 : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1130

Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rom : 550 Aneroid pressure h: 1200 : 240.0...242.0 : (237.0...245.0) Del. quantity 1000 : 6.00 Spread cm31000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 120...128 Testing: 1st rack travel in: 13.90 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.40 LOW IDLE 1 Control Lever position degrees: 87...92 Testing: Speed rpm : 200 Minimum rack trave: 8.70 rpm : 300 Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rpm : 300...500TORQUE CONTROL Dimension a mm : 0.30 nd speed rpm : 1050 Rack travel in m: 14.90...15.10 2nd speed rpm rpm : 800 3rd speed Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 Pressure hPa : 1200 Rack travel mm : 15.20...15.40 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.10...10.30 2nd pressure hPa : 250 Rack travel in m: 10.60...10.70

Rack travel in m: 13.80...14.00 START CUT-OUT Speed 1/min: 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

3rd pressure hPa : 750

#### Note remarks

Test sheet

: MB Edition : 26.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 929X

Injection pump

Pump designation: PE6P120A320LS7834-10

EP type number

: D 412 626 853

Governor

Governor design.

: RQV300...1050PA797

-25

Governer no.

: 0 421 813 924

Cust. part no.

: 0200744102

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW

: 230.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

**Openina** 

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 550

Rack travel in mm: 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread

Spread

cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm

: 1.00...1.50 2nd speed : 608 rpm

travel mm

: 4.80...5.30

3rd speed : 820 rpm

travel mm

: 5.90...6.40

4th speed rpm

: 1108

travel mm

: 8.30...8.80

5th speed rpm

: 1183

travel mm

: 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550 Aneroid pressure h: 1200

: 240.0...242.0 Del.quantity

1000 : (237.0...245.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 120...128

Testing:

1st rack travel in: 13.90

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.40

LOW IDLE 1 Control lever

position degrees: 87...92

Testing:

Speed : 200 rpm Minimum rack trave: 8.70 : 300 COM

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

rpm : 300...500 Speed

TORQUE CONTROL

: 0.30 Dimension a mm 2nd speed rpm : 1050

Rack travel in m: 14.90...15.10

3rd speed : 800 rpm

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed man hPa : 1200 Pressure

Rack travel mm : 15.20...15.40

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.40

2nd pressure hPa : 250

Rack travel in m: 10.60...10.70

3rd pressure hPa : 750

Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min: 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 1050 Speed ripin

Del.quantity cm3/: 234.0...237.0

1000 s: (231.0...240.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 134.0...136.0

1000 s: (131.0...139.0)

cm3 : 8.00 Spread 1000 s: (12.9)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 200.0...230.0

1000 s: (196.0...234.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MTU Edition : 21.05.92 Replaces Test oil : ISO-4113 Phasing Combination no. : 0 402 746 933 Injection pump Pump designation : PES6P120A720LS7262 EP type number : 0 412 726 875 Governor Governor design. : RQV300...1050PA1040 Governer no. : 0 421 814 007 Customer-spec. information Customer : MTU : 6R183-02 Engine TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 In let press., bar: 1.50 Spread Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Speed Insp. values in parentheses Set equal delivery quant. per values

Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-3 : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 33.0...33.2 100 s: (32.7...33.5) cm3 : 0.5100 s: (0.9) rpm : 350.02nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.30 travel mm 2nd speed rpm : 600 travel mm : 4.90...5.10 3rd speed : 800 rpm : 5.90...6.20 travel mm : 1100 4th speed rpm : 8.10...8.50 travel mm 5th speed : 1175 rpm : 9.70...10.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1080 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050

Aneroid pressure h: 1600

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

**: 330.0...3**32.0 Del.quantity

1000 : (327.0...335.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 13.00

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

Speed rpm : 250 Minimum rack trave: 7.50 rpm : 350

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure hPa : 1600

Rack travel mm : 13.90...14.00

Measurement

 $1/\min: 500$ Speed

1st pressure hPa : -

Rack travel in m: 7.60...7.80

2nd pressure hPa : 1200

Rack travel in m: 13.60...13.70

3rd pressure hPa : 400

Rack travel in m: 9.60...9.80

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

A14

Aneroid pressure h: 1600

Speed rpm : 750

Del.quantity cm3/: 333.0...337.0

1000 s: (330.0...340.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

cm3 : 8.00 Spread

1000 s: (12.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 385.0...405.0

1000 s: (381.0...409.0)

Remarks:

Note remarks

Test sheet : MAC 16.0 a : 03.04.92 Edition Replaces : 03.91 Test oil : ISO-4113

: 0 402 748 802 Combination no.

Injection pump

Pump designation : PES8P120A920/4LS7159

EP type number : 0 412 728 801

Governor

Governor design. : RQV325...1050PA848-

21K

: D 421 815 201 Governer no.

Customer-spec. information Customer : MACK

: EE9 502 Engine

1st version kW : 368.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. \*C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00

: 1-2-7-8-4-5-6-3 Firing order

Phasina : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 638

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.8...5.0

Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.50...1.80 travel mm

2nd speed rpm : 450

travel mm : 2.60...3.00

: 750 3rd speed rpm

travel mm : 4.10...4.50

: 1120 4th speed rpm

travel mm : 7.40...7.60

5th speed : 1430 rpm

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1185 Speed

Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed nom : 630 Aneroid pressure h: 1200 Del.quantity : 211.0...213.0 1000 : (208.0...216.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 112...120 Testing: 1st rack travel in: 12.30 Speed rpm : 1115...1125 2nd rack travel in: 4.00 Speed rpm : 1230...1260 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Testing: Speed rpm : 225 Minimum rack trave: 7.40 rpm : 325 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rom : 325...600 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 630 Rack travel in m: 12.10...12.20 2nd speed rpm : 1050 Rack travel in m: 13.30...13.50 rpm : 500 3rd speed Rack travel in m: 0.00...11.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1050 Pressure hPa : 1200 : 13.30...13.50 Rack travel mm Measurement Speed 1/min: 1050 1st pressure hPa : -Rack travel in m: 9.10...9.50

2nd pressure hPa : 195 Rack travel in m: 10.20...10.30 3rd pressure hPa ; 410 Rack travel in m: 12.10...12.50 START CUT-OUT Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 1050 Speed mari Del.quantity cm3/: 204.0...210.0 1000 s: (201.0...213.0) Spread cm3 : 10.001000 s: (14.0) : 850 Speed rpm Del.quantity cm3/: 159.0...161.0 \* 1000 s: (151.0...173.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 170.5...174.5 1000 s: (168.5...176.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 Speed rpm : 1115...1125 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 150.0...190.0 1000 s: (145.0...195.0) Rack travel in mm : 9.50...9.90 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : MACK # 313GC5178P4 \* This test specification applies only

to the engine/nozzle-and-holder

assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 25...27 Note remarks Prestroke mm : 5.20...5.30 : (5.15...5.35) Test sheet Rack travel in mm : 9.00...12.00 Edition : 26.06.92 Firing order : 6-2-4-1-5-3 Replaces Test oil : ISO-4113 Combination no. : 0 402 766 800 Phasing : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - \* : 0.50 (0.75) Pump designation : PES6P120A720/3LS7120 Time to cyl. no. : 6 EP type number : 0 412 726 878 Governor BASIC SETTING Governor design. : RSV350...1050POA529 1st speed rpm: 650 Governer no. : 0 421 833 317 Rack travel in mm : 14.00...14.20 Customer-spec, information Customer : MERCEDE'S-BENZ Del.quantity cm3/: 20.1...20.3 Engine : OM447 A 100 s: (19.8...20.6) 1st version kW : 213.0 cm3 : 0.5Spread : 2100 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Test oil Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) inlet temp. °C : 38...42 Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow Degree: -3 quantity min. 1/h: 100...120 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder assembly : 1 688 901 105 Governor spring pre-tension Click setting x : 4.25Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 075 Speed rpm : 650Aneroid pressure h: 650 Del.quantity : 201.0...206.0) Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 : 5.00 Spread cm3 1000 : (9.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

> 1st version Control lever

position degrees: 90...98

per values

BEGINNING OF DELIVERY

Testing: 1st rack travel in: 12.30 rpm : 1080...1085 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1173 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring : 350 rpm Rack travel in mm : 5.7 rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1030 1st speed Rack travel in m: 13.30...13.50 2nd speed rpm : 950 Rack travel in m: 13.70...13.90 rpm : 875 3rd speed Rack travel in m: 14.20...14.40 4th speed rpm : 750 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 600 hPa : 650 Pressure : 14.00...14.20 Rack travel mm Measurement Speed  $1/\min : 600$ 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1030 Speed

Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750
Del.quantity cm3/ : 214.0...219.0
1000 s: (211.0...222.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.30

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

rpm : 1080...1085

Remarks:

Speed

:

Note remarks

Test sheet : MB6,1I Edition : 03.07.92 : 03.92 Replaces Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump

Pump designation : PES6MW100/720RS1515

EP type number : 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-4

Governer no. : 0 420 083 284

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

: 127.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rom : 1300

Rack travel in mm: 11.50...11.60

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 3.9...4.2

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

: 8.60...9.00 travel mm

2nd speed rpm : 880

: 4.90...5.10 travel mm

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

: 1.20...1.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

: 96.0...98.0 1000 : (94.0...100.0) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 117...125

Testina:

1st rack travel in: 10.50

Speed rom : 1340...1350

2nd rack travel in: 4.00 : 1430...1460 Speed (TOIT)

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 62...70 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.0

Testing:

Speed : 200 וחכורו Minimum rack trave: 5.00 rpm : 300

Rack travel in mm : 3.90...4.20

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 mqn Pressure hPa : -

: 8.70...8.90 Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : 300

Rack travel in m: 9.40...9.60

2nd pressure hPa : 500

Rack travel in m: 10.80...11.00

3rd pressure hPa : 1000

Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 750

Del.quantity cm3/: 89.0...92.0

1000 s: (86.5...94.5) cm3 : 5.00

Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed : 500 MCC

Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm: 3.90...4.20
Del.quantity cm3/: 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 6,1 I 1 Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113

Combination no. : 0 403 246 032

Injection pump

Pump designation : PES6MW100/720RS1515

EP type number : 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-2

: 0 420 083 259 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.00...8.40

2nd speed rpm : 960

travel mm : 5.40...5.60

3rd speed MCC : 600

travel mm : 3.20...3.80

: 300 4th speed rpm

: 0.80...1.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1380 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1100

: 110.0...112.0 Del.quantity

1000 : (108.0...114.0)

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 108...116 Testina: 1st rack travel in: 11.50 rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 4.3 Testina: Speed rpm : 200 Minimum rack trave: 5.00 : 300 Speed rom Rack travel in mm : 4.20...4.40 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm Pressure hPa: -Rack travel mm : 8.70...8.90 Measurement  $1/\min : 500$ Speed 1st pressure hPa : 250 Rack travel in m: 9.70...9.90 2nd pressure hPa : 500
Rack travel in m: 11.40...11.60
3rd pressure hPa : 1100 Rack travel in m: 12.50...12.60 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed rpm : 750 Del.quantity cm3/: 100.0...103.0 1000 s: (98.0...105.0)

> cm3 : 5.00 1000 s: (7.0)

Speed rpm: 300
Rack travel in mm: 4.20...4.40
Del.quantity cm3/: 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3: 3.50
1000 s: (5.50)

.

Remarks:

Spread

Aneroid pressure h: -

Note remarks

Test sheet : VOL

Edition : 26.06.92 : 03.92 Replaces

: ISO-4113 Test oil

: 0 403 444 135 Combination no.

Injection pump

Pump designation : PES4MW100/320RS1223

EP type number : 0 413 404 119

Governor

: RQV300...1100MW122-1 Governor design.

: 0 420 083 990 Governer no.

Customer-spec. information

Customer : VME

Engine : TD45E

1st version kW : 92.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 173...176

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 2.8...3.2

100 s: (2.5...3.4) cm3 : 0.3 Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 10.00...10.40

2nd speed rpm : 800

: 6.10...6.30 travel mm

3rd speed rpm : 500

: 3.40...4.00 travel mm

4th speed : 300 rom

: 1.50...1.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 750

Aneroid F. Del.quantity 1000 : 128.0...130.0

: (126.0...132.0)

cm3 : 3.50 1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 13.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1250...1280 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring mom : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 200 Minimum rack trave: 7.50 : 300 Speed rom Rack travel in mm : 6.00...6.20 TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 14.70...14.80 : 880 2nd speed riom Rack travel in m: 15.00...15.10 3rd speed rpm : 550 Rack travel in m: 14.20...14.30 4th speed rpm : 750 Rack travel in m: 14.70...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 550 Speed man Pressure hPa : -: 12.80...12.90 Rack travel mm Measurement 1/min: 550 Speed 1st pressure hPa : 220 Rack travel in m: 13.10...13.20 2nd pressure hPa : 370 Rack travel in m: 13.60...13.90 3rd pressure hPa : 750 Rack travel in m: 14.20...14.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Speed rpm : 880 Del.quantity cm3/: 133.5...136.5 1000 s: (131.0...139.0) cm3 : 5.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 550 Speed Del.guantity cm3/: 86.0...88.0 1000 s: (84.0...90.0) RACK STOP ADJUSTMENT Speed rpm : 100 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 Speed : 1140...1150 rom STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 145.0...155.0 1000 s: (142.0...158.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 300 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

1st version

Aneroid pressure h: 750

Note remarks

Test sheet

Edition

: 26.06.92

: MR

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 444 139

Injection pump

Pump designation: PES4MW100/720RS1151

EP type number

: 0 413 404 104

Governor

Governor design. : RQV300...1300MW67-7

Governer no.

: 0 420 083 278

Customer-spec. information Customer

: MB-NFZ

Engine

: 0M364A

1st version kW

: 79.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

A26

Firing order : 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - "

: 0.50 (0.75)

BASIC SETTING

1st speed

rom : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 6.3...6.5

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3

Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.40...8.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm

: 500

travel mm

: 2.70...3.30

4th speed travel mm

riom : 300

: 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1300

Aneroid pressure h: 700 Del.quantity

: 82.0...84.0

1000 : (80.0...86.0)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: 108...116

Testina:

1st rack travel in: 9.80

Speed rpm : 1340...1350

2nd rack travel in: 4.00

rpm : 1420...1450 Speed

4th rack travel in: 1500

Speed rom : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 74...82

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.4

Testing:

: 200 Speed rom Minimum rack trave: 8.00 : 300 rom

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

rom : 480...540 Speed

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.80...10.90

2nd speed rpm : 600

Rack travel in m: 11.60...11.70

3rd speed rpm : 1000

Rack travel in m: 11.60...11.70

4th speed rpm : 1175

Rack travel in m: 11.30...11.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : -

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 150 Rack travel in m: 10.30...10.50 2nd pressure hPa : 300

Rack travel in m: 11.30...11.50

3rd pressure hPa : 700

Rack travel in m: 11.60...11.70

START CUT-OUT

1/min: 200 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600 Del.quantity cm3/ : 75.0...78.0 1000 s: (72.5...80.5)

Spread cm3 : 5.00

1000 s: (7.0) Aneroid pressure h: -

rpm\_ : 500 Speed

Del.quantity cm3/: 46.0...48.0

1000 s: (44.0...50.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rom : 1340...1350

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

: 300 Speed rpm

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

:

Note remarks

Test sheet : VOL 4,5 Q Edition : 21.05.92 : 11.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 287

Injection pump

Pump designation : PES6MW100/320RS1219

EP type number : 0 413 406 209

Governor

Governor design. : RQV350...1100MW118

: 0 420 083 249 Governer no.

Customer-spec. information Customer : VMF

: TD 61 GB Engine

1st version kW : 115.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Openina** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

: 9.00...9.40 travel mm

2nd speed rpm : 1150

: 8.70...8.90 travel mm 3rd speed rpm : 725

travel mm

: 3.70...4.30

4th speed rpm : 350 travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.60

rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1300 rpm : 0.10...1.00Speed LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.6 Testing: Speed mct<sup>-1</sup> : 200 Minimum rack trave: 8.00 rpm : 350 Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00 Speed rpm : 460...520 TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 11.60...11.70 and speed rpm : 700 Rack travel in m: 12.40...12.60 2nd speed 3rd speed rpm : 1025 Rack travel in m: 11.80...12.10 4th speed rpm : 900 Rack travel in m: 12.20...12.50 Aneroid/Actitude Compensator Test 1st version Setting Speed rom : 700 Pressure hPa : 870 Rack travel mm : 12.10...12.20 Measurement  $1/\min : 700$ Speed 1st pressure hPa : -Rack travel in m: 9.80...9.90 2nd pressure hPa : 250 Rack travel in m: 10.10...10.40 3rd pressure hPa : 1000 Rack travel in m: 12.40...12.60 START CUT-OUT Speed 1/min: 270 (290) FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/ : 122.5...125.5 1000 s: (120.0...128.0) cm3 : 3.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 700 Del.quantity cm3/: 77.0...79.0 1000 s: (75.0...81.0) RACK STOP ADJUSTMENT Speed rpm : 100 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.00) Remarks:

1st version

Note remarks

Tesi sheet : RVI 6,2 J 1 Edition : 13.03.92

: 03.92 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 291

Injection pump

Pump designation : PES6MW100/320RS1214

EP type number : 0 413 406 204

Governor

Governor design. : RQV275...1250MW115-1

: 0 420 083 992 Governer no.

Customer-spec. information Customer : RVI

: MIDR 060226 V Engine

: 129.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30 : (4.15...4.35)

Rack travel in mm : 16.50...19.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - " : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.10...13.20

Del.guantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 275.0 2nd speed

Rack travel in mm : 6.10...6.50

Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330

: 9.80...10.20 travel mm

2nd speed rpm : 950

travel mm : 6.90...7.10

3rd speed rpm : 550 : 3.60...4.20 rpm : 275

travel mm 4th speed

: 0.80...1.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1000

Del.quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm3 : 3.501000 : (6.00) RATED SPEED 1st version Control 'ever position degrees: 298...306 Testing: 1st rack travel in: 12.10 rpm : 1320...1340 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1500 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 238...246 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm: 5.30 Testing: Speed rpm : 200 Minimum rack trave: 6.40 Speed rpm : 275 Rack travel in mm : 5.10...5.30 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250
Rack travel in m: 13.10...13.20
2nd speed rpm : 700 Rack travel in m: 12.20...12.30 3rd speed rpm : 1000 Rack travel in m: 12.60...12.80 4th speed rpm : 500 Rack travel in m: 11.80...12.00 Aneroid/Altitude

Compensator Test

1st version Setting Speed

rpm : 1250 hPa : 1000 rom Pressure

Rack travel mm : 13.10...13.20

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 12.00...12.20

2nd pressure hPa : 180

Rack travel in m: 12.60...12.80

3rd pressure hPa : 140

Rack travel in m: 12.30...12.50

START CUT-OUT

Speed 1/min: 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 700 Speed

Del.quantity cm3/: 98.5...101.5 1000 s: (96.0...104.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm : 1250 Speed

Del.quantity cm3/: 89.0...91.0

1000 s: (87.0...93.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 12.10

rpm : 1320...1340 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...112.0

1000 s: (85.0...115.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275

Rack travel in mm : 6.10...6.50 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3: 3.50 1000 s: (5.00)

Remarks:

Set start-of-delivery sensor with prestroke = 4.20...4.30 mm at

cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC Edition : 03.07.92 Replaces Test oil : ISO-4113 Phasing : 0 403 446 308 Combination no. Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design. : RQV350...1200MW46-47 1st speed : 0 420 083 277 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 156.5 Spread Rated speed : 2400 TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. °C : 38...42 Overflow valve Spread : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm Speed (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Spread per values

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 800 Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.3100 s: (0.6) rpm : 350.0Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm 2nd speed rpm : 1250 : 7.90...8.10 travel mm 3rd speed rpm : 550 : 3.10...3.70 travel mm 4th speed : 350 rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Aneroid pressure h: 1200 Del.quantity : 122.0...124.0 1000 : (120.0...126.0) : 3.50 cm3 1000 : (6.00) RATED SPEED

1st version

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control lever position degrees: 102...110 Testina: 1st rack travel in: 10.50 rpm : 1270...1290 Speed 2nd rack travel in: 4.00 Speed rpm : 1405...1415 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rom : 350 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 9.00 : 350 rom Rack travel in mm : 5.30...5.50 CONSTANT REGULATION : 300...450 Speed rom Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rom hPa : 1200 Pressure Rack travel mm : 11.50...11.60 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.70...8.80 2nd pressure hPa : 245 Rack travel in m: 9.80...9.90

3rd pressure hPa : 395

Rack travel in m: 10.90...11.30

1/min: 280 (290)

FUEL DELIVERY CHARACTERISTICS

rpm : 1200 Del.quantity cm3/: 118.5...122.5

1000 s: (116.5...124.5)

Aneroid pressure h: 1200

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 68.0...71.0 1000 s: (66.0...73.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 1270...1290 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 130.0...170.0 1000 s: (125.0...175.0) Rack travel in mm : 12.50...13.50 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks: : IHC #1819888C91 Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter. In unlatched condition, do not operate greater than n = 500 1/minSet shutoff stop 1.5...2.0 mm before shutoff.

START CUT-OUT

1st version

Speed

Speed

Note remarks

Test sheet : MAN 7,3 D : 21.05.92 Edition Replaces : 01.92 Test oil : ISO-4113

Combination no. : 0 403 456 115

Injection pump

Pump designation : PES6MW100/321RS1215

EP type number : 0 413 406 205

Governor

Governor design. : RQ250/1200MW84-7 : 0 420 082 055 Governer no.

Customer-spec. information : MAN Customer

Engine : D 0826 LUH 01

1st version kW : 199.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 17.5...17.7

100 s: (17.3...17.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 2.8...3.2

100 s: (2.5...3.4) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1320 1st speed

travel mm : 9.30...9.70

rpm : 1255 2nd speed

: 6.50...6.70 travel mm 3rd speed rpm : 360

: 3.90...4.50 travel mm

rpm : 250 4th speed travel mm : 1.60...2.00

GUIDE SLEEVE POSITION Control-lever position

Degree: 108

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000Aneroid pressure h: 1400

Del.quantity : 175.0...177.0

1000 : (173.0...179.0)

: 3.50 Spread cm3

1000 : (6,00)

**B06** 

RATED SPEED

1st version

Control lever

position degrees: 91...99

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.20

rpm : 1245...1260 Speed

2nd rack travel in: 4.00

rpm : 1340...1370 Speed

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever position degrees: 67...75

Setting point w/out bumper spring

rpm : 250

Rack travel in mm: 6.4

Testing:

rpm : 150 Speed

Minimum rack trave: 8.00

Speed rpm : 250 Rack travel in mm : 6.30...6.50

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom hPa : 350 Pressure

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.10

2nd pressure hPa : 850

Rack travel in m: 12.30...12.60

3rd pressure hPa : 1400

Rack travel in m: 14.20...14.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 600

Del.quantity cm3/: 180.0...183.0

1000 s: (177.5...185.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 60.0...62.0 1000 s: (58.0...64.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.20

rpm : 1245...1260 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 60.0...80.0

1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: MAN #3-7126

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet

: MAN

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 456 118

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number

: 0 413 406 190

Governor

Governor design. : RQV250...1200MW83-3

Governer no.

: 0 420 083 280

Customer

Customer-spec. information

: MAN

Engine

: D 0826 LF08

1st version kW

: 169.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Phasina

Firing order

: 0-60-120-180-240-300

: 1-5-3-6-2-4

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1000

Rack travel in mm : 12.60...12.70

Del.guantity cm3/: 14.0...14.2

100 s: (13.8...14.4)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm: 5.4...5.6

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1250 1st speed

: 10.50...10.60 travel mm

rpm : 810 2nd speed

: 5.90...6.10 travel mm rpm : 500 3rd speed

travel mm

: 3.70...4.30

4th speed

rpm : 250

travel mm

: 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

: 140.0...142.0 Del.quantity

1000 : (138.0...144.0)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Spread

Control lever

position degrees: 120...128

**B08** 

Testina: 1st rack travel in: 11.40 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rpm : 1320...1350 4th rack travel in: 1400 Speed Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 7.00 Speed rpm : 250 Rack travel in mm : 5.40...5.60 CONSTANT REGULATION Speed rpm : 330...420 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.60...12.70 rpm : 600 2nd speed Rack travel in m: 12.80...13.00 3rd speed rpm : 800 Rack travel in m: 12.80...13.00 4th speed rpm : 1200 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 155 Speed rpm Pressure Rack travel mm : 10.30...10.40 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.80...13.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Speed : 600 man Del.quantity cm3/: 139.5...142.5 1000 s: (137.0...145.0) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.40 Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 60.0...80.0 1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7135

Start-of-delivery mark is at start of delivery of cylinder 1

B09

Note remarks

Test sheet

: MAN

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 456 119

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number

: 0 413 406 190

Governor

Governor design. : RQ250/1200MW84-10

Governer no.

: 0 420 082 065

Customer-spec. information Customer

: MAN

Engine

: D0826LF 08/LUH05

1st version kW

: 169.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 15.00...0.00

**B10** 

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

Spread

rpm: 800

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

cm3 : 0.3

100 s: (0.6)

rpm : 250.02nd speed

Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.5Spread

100 s: (0.7)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 13001st speed travel mm

: 8.40...8.80

2nd speed

rpm : 1260 : 6.60...6.80 travel mm

rpm : 345 3rd speed

: 4.00...4.60 travel mm

rpm : 250 4th speed

travel mm

: 1.80...2.20

GUIDE SLEEVE POSITION Control-lever position

Degree: 107

rpm : 600 Speed

Rack travel in mm : 18.20...19.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

rpm : 800

Aneroid pressure h: 1000

: 141.0...143.0

Del.quantity 1000 : (139.0...145.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 600 Rack travel in mm : 19.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1245...1260 2nd rack travel in: 4.00

rpm : 1300...1330 Speed

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 7.00 rpm : 250

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - îst version

1st speed rpm : 800

Rack travel in m: 12.80...12.90

2nd speed rpm : 600

Rack travel in m: 12.70...12.90

3rd speed rpm : 1000

Rack travel in m: 12.50...12.60

4th speed rpm : 1200

Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom hPa : 155 Pressure

Rack travel mm : 10.30...10.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 550

Rack travel in m: 11.90...12.20

3rd pressure hPa : 1000

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600 Del.quantity cm3/: 139.5...142.5 1000 s: (137.0...145.0)

cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.guantity cm3/: 74.0...76.0

1000 s: (72.0...78.0)

**BREAKAWAY** 

Spread

1st version

15m rack travel less than

full load rack tr: 11.50

Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del.guantity cm3/: 60.0...80.0

1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

cm3 : 5.00

Spread

1000 s: (7.00)

Remarks:

: MAN #3-7035

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : CUM : 26.06.92 Edition Replaces : 03.92

Test oil : ISO-4113

Combination no. : 0 403 466 127

Injection pump

Pump designation : PES6MW100/120RS1137-

EP type number : 0 413 406 180

Governor

: RSV550...1100MW2A335 Governor design.

: 0 420 085 185 Governer no.

Customer-spec. information Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 194.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

**Opening** 

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 15.4...15.6

100 s: (15.2...15.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 550.0 2nd speed

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.8...2.2

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 754.0...158.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 88...96

Setting point: : 800 Speed rom Rack travel in mm: 0.6 Testina: 1st rack travel in: 13.50 Speed rpm : 1165...1175 2nd rack travel in: 4.00 rpm : 1240...1250 Speed 3rd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1350 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rom Rack travel in mm: 6.3 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 550 Speed rom Rack travel in mm : 6.20...6.40 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.50...14.60 d speed rpm : 750 2nd speed Rack travel in m: 15.00...15.20 rpm : 1000 3rd speed Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 500 Pressure hPa : 900 Rack travel mm : 15.00...15.20

Measurement Speed 1/min:500

1st pressure hPa : Rack travel in m: 11.40...11.60
2nd pressure hPa : 400
Rack travel in m: 12.30...12.40
3rd pressure hPa : 630
Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: Speed rpm : 500

Del.quantity cm3/: 98.0...100.0 1000 s: (96.0...102.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 13.50 Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (127.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 18.5...22.5

1000 s: (16.0...25.0)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: CUM #3911657

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.50...3.60 : (3.45...3.65) Note remarks Prestroke mm Test sheet Rack travel in mm : 9.00...12.00 : CUM Edition : 26.06.92 Firing order : 1-5-3-6-2-4 : 03.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 466 128 Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° Injection pump : 0.50 (0.75) Pump designation : PES6MW100/120RS1137-Time to cyl. no. : 1 EP type number : 0 413 406 180 Governor BASIC SETTING : RSV550...1100Mw2A335 Governor design. 1st speed rpm : 1100: 0 420 085 196 Governer no. Rack travel in mm: 13.30...13.40 Customer-spec. information Customer : CUMMINS Del.quantity cm3/: 14.0...14.2 : 6 CTA-8.3 Engine 100 s: (13.8...14.4) 1st version kW : 176.0 cm3 : 0.3Spread Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 550.0Test oil Rack travel in mm: 6.7...6.9 inlet temp. °C : 38...42 Del.quantity cm3/: 2.8...3.2 100 s: (2.6...3.5) Overflow valve Spread cm3 : 0.3: 1 419 992 198 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 101 assembly rpm : 800 Rack travel in mm : 0.30...1.00 Openina pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.00Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 014 Speed rpm : 1100Aneroid pressure h: 1000 Aneroru p. Del.quantity 1000 : 140.0...142.0 : (138.0...144.0) Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 cm3 : 3.50Spread 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version

Control lever

position degrees: 86...94

BEGINNING OF DELIVERY

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.30

Speed rpm : 1165...1175 2nd rack travel in: 4.00

Speed rpm : 1240...1250

3rd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

rpm Rack travel in mm: 6.3

Testing:

Speed nom : 100 Minimum rack trave: 19.00 : 550 rom

Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 13.30...13.40

rpm : 750 2nd speed

Rack travel in m: 14.00...14.10

3rd speed rpm : 1000

Rack travel in m: 14.00...14.10

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 1000

Rack travel mm : 14.00...14.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 450

Rack travel in m: 11.00...11.10

3rd pressure hPa : 675

Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 800 Del.quantity cm3/ : 153.0...157.0 1000 s: (151.0...159.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 79.0...81.0

1000 s: (77.0...83.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 550 Speed

Rack travel in mm : 6.70...6.90

Del.quantity cm3/: 28.5...32.5

1000 s: (26.0...35.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

Test sheet : LIE 8,4 D : 03.07.92 Edition : 09.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 476 081

Injection pump

Pump designation : PES6MW100/720RS1196-

EP type number : 0 413 406 219

Governor

Governor design. : RSV350...1050MW0A338

: 0 420 085 138 Governer no.

Customer-spec. information Customer : LIEBHERR

: D 916 T Engine

1st version kW : 170.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 049

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.40...3.50 Prestroke mm

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 2.7...3.1

100 s: (2.4...3.3)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 750

: 133.0...135.0 Del.quantity

1000 : (131.0...137.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

**B16** 

1st rack travel in: 10.10 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1115...1145 Speed 3rd rack travel in: 4.00 rpm : 1140...1170 Speed 4th rack travel in: 1200 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350
Rack travel in mm : 5.50...5.90
Rack travel in mm : 2.00 rpm : 420...480 TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 11.10...11.20 2nd speed rpm : 500 Rack travel in m: 11.10...11.20 3rd speed rpm : 800 Pack travel in m: 11.10...11.20 rpm : 400 5th speed Rack travel in m: 12.60...12.70 Aneroid/Altitude Compensator Test 1st version Setting rpm : 550 Speed Pressure hPa : -Rack travel mm : 10.40...10.60 Measurement 1/min: 550 Speed 1st pressure hPa : 350 Rack travel in m: 10.80...11.00 2nd pressure hPa : 750 Rack travel in m: 11.10...11.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed man : 500

Del.quantity cm3/: 127.0...130.0 1000 s: (124.5...132.5) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/: 120.0...122.0 1000 s: (118.0...124.0)

## **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1070...1080

## STARTING FUEL DELIVERY

#### LOW IDLE

#### Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Note remarks

Test sheet : LIE

Edition : 21.05.92

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 0810

Injection pump

Pump designation : PES6MW100/720RS1196

EP type number : 0 413 406 184

Governor

Governor design. : RSV350...1050MW0A338

: 0 420 085 138 Governer no.

Customer-spec. information Customer : LIEBHERR

Engine : D 916 T

1st version kW : 160.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 049

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prest toke mm : 3.40...3.50

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

**B18** 

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm: 4.1...4.5 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

COS: mar

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 750

: 141.0...143.0 Del.quantity 1000 : (139.0...145.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 84...92

Setting point:

Speed rom

Rack travel in mm: 0.6

Testina:

1st rack travel in: 10.60

rpm : 915...930 Speed 2nd rack travel in: 4.00 rpm : 950...980 Speed 3rd rack travel in: 4.00 Speed rpm : 960...990 4th rack travel in: 1100 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring Speed rpm : 500 Rack travel in mm: 3.8 Testina: Speed : 100 COM Minimum rack trave: 19.00 rpm : 500 Rack travel in mm : 3.60...4.00 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 11.60...11.70 rpm : 500 2nd speed Rack travel in m: 11.60...11.70 rpm : 700 3rd speed Rack travel in m: 11.60...11.70 5th speed rpm : 550 Rack travel in m: 13.00...13.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 550 rpm Pressure hPa : -Rack travel mm : 9.80...10.00 Measurement 1/min: 550 Speed 1st pressure hPa : 400 Rack travel in m: 10.30...10.60 2nd pressure hPa : 550 Rack travel in m: 11.30...11.40 3rd pressure hPa : 750 Rack travel in m: 11.60...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed rpm : 500 Del.quantity cm3/: 140.0...143.0

1000 s: (137.5...145.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm : 550 Del.quantity cm3/: 103.0...105.0 1000 s: (101.0...107.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm . 915...930 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE

opread cm3 : 3.50 1000 s: (5.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Note remarks

Test sheet

: MWM

Edition

: 03.07.92

Replaces

: 04.92

Test oil

: ISO-4113

Combination no. : 0 403 476 118

Injection pump

Pumo designation : PES6MW100/720RS1217-

EP type number

: 0 413 406 214

Governor

Governor design. : RSV325...1200Mw0A349

Governer no.

: 0 420 085 194

Customer-spec. information Customer

: MWM

Engine

: TD 226 B 6

1st version kW

Rated speed

: 118.0 : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening.

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 4.00...4,10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1175

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 325.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.8...1.2 100 s: (0.5...1.4)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1175

Aneroid pressure h: 750

Spread

: 3.50

cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm

Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.20 rpm : 1220...1230 Speed 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 3rd rack travel in: 4.00 rpm : 1265...1295 Speed 4th rack travel in: 1350 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 6.0 Testina: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 325 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 0.90 Torque control curve - 1st version 1st speed rpm : 1175 Rack travel in m: 9.20...9.30 and speed rpm : 750 Rack travel in m: 10.10...10.20 2nd speed 3rd speed rpm : 1025 Pack travel in m: 9.50...9.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : -Pressure Rack travel mm : 8.40...8.50 Measurement 1/min: 500 Speed 1st pressure hPa : 270 Rack travel in m: 9.10...9.20 2nd pressure hPa : 350 Rack travel in m: 9.50...9.80 3rd pressure hPa : 750 Rack travel in m: 10.10...10.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed rpm : 750

Del.quantity cm3/: 104.5...107.5 1000 s: (102.0...110.0) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 62.5...64.5 1000 s: (60.5...66.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.20 Speed rpm : 1220...1230 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 325 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...14.5) cm3 : 3.50

Remarks:

Spread

Test electrically-released starting quantity (EES) with 12 volts

1000 s: (5.50)

Note remarks

Test sheet

: MB

Edition

: 03.07.92

Replaces

: 04.92

Test oil

: ISO-4113

Combination no.

: 0 403 476 120

Injection pump

Pump designation : PES6MW100/720RS113

EP type number

: 0 413 406 165

Governor

Governor design.

: RSV350...750MW0A336-

Governer no.

: 0 420 085 198

Customer

Customer-spec. information : MB-NFZ

Engine .

: OM 366 LA

1st version kW

: 87.0

Rated speed

: 1500

TEST BENCH REQUIREMENTS

Test oil

in'et temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.60...3.70

; (3.55...3.75)

Rack travel in vm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 350.0

Rack travel in mm: 5.3...6.3

Del.quantity cm3/: 0.9...1.3 100 s: (0.6...1.5)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.80

1st version

Speed

rpm : 700

FULL LOAD DELIV. AT FULL LOAD STOP

Del.quantity

: 85.0...87.0 1000 : (83.0...89.0)

cm3

: 3.50

Spread 1000 : (6:00)

RATED SPEED

1st version

Control lever

position degrees: 71...79

Setting point:

Speed

rpm : 800

Rack travel in mm : 0.6

**B22** 

Testina:

1st rack travel in: 11.50

Speed rpm : 750...755 \* 2nd rack travel in: 4.00

rpm : 775...788 Speed

4th rack travel in: 850

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 57...61

Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm: 5.8

Testing:

Speed rpm : 100

Minimum rack trave: 19.00 Speed rom: 350 Rack travel in mm: 5.30...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

#### BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

#### LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...6.30
Del.quantity cm3/: 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

### Remarks:

\* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC Edition : 03.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 124 Injection pump Pump designation : PES6MW100/320RS1213 EP type number : 0 413 406 203 Governor Covernor design. : RSV350...1150MW8A347 : 0 420 085 202 Governer no. Customer-spec. information Customer : NAVISTAR : DT-466 Engine 1st version kW : 204.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008

: 6.00x2.00x600 Insp. values in parentheses Set equal delivery quant. per values **B24** 

Outside diameter x Wall thickness x Length mm (A) Injection pump setting values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st\_speed rpm: 1100 Rack travel in mm: 14.90...15.00

Del.guantity cm3/: 16.4...16.6

100 s: (16.2...16.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Dearee: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

: 164.5...166.5 Del.quantity 1000 : (162.5...168.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 98...106

Setting point:

Speed : 800 rpm

Rack travel in mm: 0.6 Testina:

1st rack travel in: 13.90 rpm : 1160...1170 Speed 2nd rack travel in: 4.00

rpm : 1230...1240 Speed

3rd rack travel in: 4.00

Speed rpm : 1235...1245

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW THE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.1

Testina:

Speed : 100 rom Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 5.00...5.20

Aneroid/Altitude Compensator Test

1st version Settina

Speed mon : 500 Pressure hPa : 1200

: 14.90...15.00 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack cravel in m: 9.80...10.00 2nd pressure hPa : 300 Rack travel in m: 11.10...11.20

3rd pressure hPa : 760

Rack travel in m: 13.40...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 79.5...83.5

1000 s: (77.5...85.5)

**BREAKAWAY** 

1st version 1mm rack travel less than full load rack tr: 13.90

rpm : 1160...170 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...190.0

1000 s: (165.0...195.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50

Spread

1000 s: (5.00)

Remarks:

: IHC #1818557C91

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet Edition

: IHC : 03.07.92

Replaces Test oil

: ISO-4113

Combination no. : 0 403 476 125

Injection pump

Pump designation : PES6MW100/320RS1198-

EP type number

: 0 413 406 211

Governor

: RSV350...1100Mw2A347 Governor design.

Governer no.

: 0 420 085 203

Customer-spec. information Customer : NAVISTAR

Engine

: DT-466

1st version kW

: 184.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.25...3.35 : (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 13.9...14.1

100 s: (13.7...14.3)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm: 5.1...5.3

Del.quantity cm3/: 1.5...1.9

100 s: (1.3...2.2)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 759.0...143.0)

Spread

cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testina:

1st rack travel in: 11.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

Speed rpm : 1200...1210 4th rack travel in: 1350

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 64...72

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.2

Testina:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 5.10...5.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 900

: 12.70...12.80 Rack travel mm

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 255

Rack travel in m: 10.30...10.40

3rd pressure hPa : 535

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 83.0...87.0

1000 s: (81.0...89.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0...180.0

1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350Speed

Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 15.5...19.5 1000 s: (13.0...22.0)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

: IHC #1819454C91

Note remarks

Test sheet : KHD 13,4D12 : 26.06.92 Edition Replaces : 10.89

: ISO-4113 Test oil

Combination no. : 0 403 548 025

Injection pump

Pump designation : PE8MW100/720LS1128

EP type number : 0 413 508 103

Governor

Governor design. : RQ300/1150MW63-3 : 0 420 082 030 Governer no.

Customer-spec. information Customer: : KHD

Engine : BF 8L 513

1st version kW : 225.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1-8-7-2-6-5-4- 3

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - \* : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

: 9.00...9.80 travel mm 2nd speed rpm : 1220

: 6.60...6.80 travel mm

3rd speed rpm : 650

travel mm

: 5.70...6.30

rpm : 300 4th speed

travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1000

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SFEED

1st version Control Lever position degrees: 29...37 Setting point: Speed : 600 rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.90 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rom : 1260...1290 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 7...15 Setting point w/out bumper spring : 300 Speed rom Rack travel in mm: 6.6 Testing: Speed : 100 rpm Minimum rack trave: 8.20 rpm : 300 Speed Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rpm : 320...400 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.90...13.00 2nd speed rpm : 700 Rack travel in m: 13.20...13.30 3rd speed rpm : 800 Rack travel in m: 13.00...13.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 660 Rack travel mm : 12.70...12.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.90...12.00 2nd pressure hPa : 530 Rack travel in m: 12.20...12.50

3rd pressure hPa : 1000 Rack travel in m: 13.20...13.30 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 700 Del.quantity cm3/: 142.5...145.5 1000 s: (140.0...148.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 450 Del.quantity cm3/: 107.0...109.0 1000 s: (105.0...111.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1190...1200 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

Note remarks

Test sheet : MWM 2,6 a Edition : 29.06.92 : 03.90 Replaces Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump

Pump designation : PES3A80D320/3RS1264 EP type number : 9 400 083 053

Governor

: RSV350...1200A2B627R Governor design.

Governer no. : 9 420 082 194

Customer-spec. information Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.20...2.30 Prestroke mm : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3 Phasing : 0-120-240

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 5.0...5.1

100 s: (4.9...5.3)

Spread cm3 : 0.2

100 s: (0.4)

rpm : 350.02nd speed Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 0.7...1.1

100 s: (0.5...1.3)

cm3 : 0.2Spread 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1200

: 50.5...51.5 Del.quantity 1000 : (49.0...53.0)

Spread cm3 : 2.50 1000 : (4.00)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1285...1315

4th rack travel in: 1400

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.40...9.50

2nd speed rpm : 500

Rack travel in m: 9.40...9.60

5th speed rpm : 400

Rack travel in m: 10.60...11.20

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm: 350

Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Navy

Note remarks

Test sheet : MMM 2,6 a 1 Edition : 21.05.92 Replaces : 11.89 Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump

Pump designation : PES3A80D320/3RS1264 EP type number : 9 400 083 053

Governor

Governor design. : RSV350...900A7B627R

Governer no. : 9 420 082 193

Customer-spec. information Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30 : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.3...7.5 Del.quantity cm3/: 0.8...1.2

100 s: (0.6...1.4)

100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm: 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control Lever

position degrees: 75...83 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.5

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm: 5.40...5.60 Rack travel in mm: 2.00

rpm : 420...480 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.20...10.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MwM 3,4 b 1
Edition : 29.06.92
Replaces : 03.91
Test oil : ISO-4113

Combination no. : 9 400 083 427

Injection pump

Pump designation : PES4A80D320/3RS1265

EP type number : 9 400 083 055

Governor

Governor design. : RSV350...900A7R627R

Governer no. : 9 420 082 193

Customer-spec. information Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30

: (2.15...2.35) Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference \* CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3: 0.2

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 7.3...7.5 Del.quantity cm3/: 0.8...1.2

100 s: (0.6...1.4)

Spread cm3 : 0.2 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

ontrol-lever position. 3- Degree: –3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50 1000 : (4.00)

RATED SPEED

1st version Control lever

position degrees: 107...115

Testina:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100 rpm : 0.30...1.70Speed

LOW IDLE 1 Control Lever

position degrees: 75...83 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.20...10.30

2nd speed rpm : 500 Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 940...945

STARTING FUEL DELIVERY

: 100 rpm

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MWM 5,1 a Edition : 29.06.92 Replaces : 03.91 Test oil : ISO-4113

Combination no. : 9 400 083 429

Injection pump

Pump designation : PES6A80D320/3RS1261 : 9 400 083 057 EP type number

Governor

Governor design.: RSV350...900A79627R

: 9 420 082 193 Governer no.

Customer-spec. information Customer

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil

inlet temp. \*C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30

: (2.15...2.35) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to tyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference \* CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.7...1.2

100 s: (0.6...1.4)

cm3 : 0.2Spread 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

: 2.50 Spread cm3 1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testina:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100 rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 75...83 Setting point w/out bumper spring

Speed rrm: 350 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00

Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.20...10.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : CUM 8,3 514 Edition : 21.05.92 Replaces : 01.91

Test oil : ISO-4113

: 9 400 083 458 Compination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1100AB1218-

: 9 420 080 302 Governer no.

Customer-spec, information Customer : CUMMINS

Engine : 6 CT

: 156.6 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 1.3...1.7

100 s: (1.0...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1165

: 7.90...8.10 travel mm

2nd speed 350 rpm travel mm

2.00...2.50 3rd speed

: 650 non

: 4.50...5.00 travel mm 4th speed : 1330 rpm

: 9.30...9.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : -Rack travel in m: 11.80...12.10 Speed rpm : 1100 2nd pressure hPa : 600 Rack travel in m: 13.20...13.30 3rd pressure hPa : 520 Aneroid pressure h: 800 : 117.0 ... 119.0 Deliquantity 1000 : (115.0...121.0) : 3.50 Spread cm3 Rack travel in m: 12.40...12.60 1000 : (6.00)START CUT-OUT RATED SPEED Speed 1/min: 270 (290) 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 111...119 Testing: 1st version 1st rack travel in: 11.70 Aneroid pressure h: 800 rpm : 1160...1170 Speed : 700 Speed rom 2nd rack travel in: 4.00 Del.quantity cm3/: 134.0...137.0 1000 s: (131.5...139.5) rpm : 1300...1330 Speed 4th rack travel in: 1450 Aneroid pressure h: 800 rpm : 0.00...1.00 Speed : 900 Speed rpm Del.quantity cm3/: 126.0...129.0 1000 s: (123.5...131.5) LOW IDLE 1 Control lever Aneroid pressure h: position degrees: 70...78 Speed rpm : 500 Del.quantity cm3/: 93.5...95.5 1000 s: (91.5...97.5) Testing: Speed rom : 100 Minimum rack trave: 10.00 rpm : 350 **BREAKAWAY** Rack travel in mm : 5.90...6.10 1st version CONSTANT REGULATION 1mm rack travel less than Speed rpm : 350...500 full load rack tr: 11.70 TORQUE CONTROL Speed rpm : 1160...1170 Dimension a mm : 1.10 Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 1100 Rack travel in m: 12.70...12.80 od speed rpm : 700 2nd speed Speed : 100 rpm Rack travel in m: 13.80...13.90 Del.quantity cm3/: 160.0...180.0 3rd speed rpm : 850 1000 s: (-) Rack travel in m: 13.50...13.70 Rack travel in mm : 19.00...21.00 rpm : 950 4th speed Rack travel in m: 13.00...13.30 LOW IDLE Aneroid/Altitude Speed rpm : 350 Rack travel in mm : 5.90...6.10 Compensator Test Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5) 1st version cm3 : 3.50 Spread Setting 1000 s: (5.50) Speed rom : 500 hPa : 800 Pressure Remarks: : 13.80...13.90 Rack travel mm : C.D.C. # 3354617 Start-of-delivery mark at 10° cam Measurement rotation angle after start of delivery, Speed 1/min: 500 cylinder 1

C11

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : CUM : 21.05.92 Replaces Test oil : ISO-4113 Combination no. : 9 400 083 460 Injection pump Pump designation: PES6A100D320/3RS2827 EP type number : 9 400 084 030 Governor Governor design. : RQV350...1200AB1267R : 9 420 080 319 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CTAA-8.3L : 179.1 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 2.70...2.80 : (2.65...2.85) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasina . 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00
Difference ° CS : 3.50...4.50 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 12.9...13.1 100 s: (12.7...13.3) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) (8) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 : 8.80...9.00 travel mm rpm : 350 2nd speed : 1.40...1.90 travel mm rpm : 550 3rd speed travel mm : 3.00...3.50 rpm : 1000 4th speed 5.90...6.40 travel mm : 1320 5th speed rpm : 9.60...10.10 travel mm GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1220 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : -Speed rpm : 1100 Aneroid pressure h: 1000 Rack travel in m: 9.60...9.90 2nd pressure hPa : 370 Rack travel in m: 10.20...10.30 3rd pressure hPa : 590 Rack travel in m: 11.40...11.60 START CUT-OUT RATED SPEED Speed  $1/\min: 270 (290)$ 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 118...126 Testina: 1st version 1st rack travel in: 10.40 Aneroid pressure h: 1000 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1200 Del.quantity cm3/: 119.0...124.0 Speed rpm : 1305...1335 1000 s: (117.0...126.0) 4th rack travel in: 1450 Aneroid pressure h: 1000 rps : 0.00...1.00 Speed Speed rpm : 750 Del.quantity cm3/: 134.0...137.0 1000 s: (132.0...139.0) LOW IDLE 1 Control lever Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 102.0...104.0 1000 s: (100.0...106.3) position degrees: 65...73 Testing: Speed rpm : 100 Minimum rack trave: 8.50 rpm : 350 **BREAKAWAY** Rack travel in mm : 4.70...4.90 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 350...500 Speed full load rack tr: 10.40 TORQUE CONTROL Speed rpm : 1240...1250 Dimension a ma : 0.60 Torque control curve - 1st ve sion STARTING FUEL DELIVERY 1st speed rpm : 1200 Rack travel in m: 11.40...11.50 2nd speed rpm : 750 Speed rpm : 100 Rack travel in m: 12.00...12.10 Del.quantity cm3/: 166.0...180.0 3rd speed rpm : 1100 Rack travel in m: 12.00...12.10 1000 s: (163.0...183.0) Rack travel in mm : 19.00...21.00 4th speed rpm : 1150 Rack travel in m: 11.70...11.80 LOW IDLE Aneroid/Altitude Speed rpm : 350 Rack travel in mm : 4.70...4.90 Compensator Test Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.50) 1st version Spread Setting rpm : 500 hPa : 1000 Speed rom Pressure Remarks: Rack travel mm : 12.00...12.10 Measurement Start-of-delivery mark 11° cam angle 1/min : 500 Speed after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 21.05.92 Replaces : ISO-4113 Test oil Combination no. : 9 400 083 462 Injection pump Pump designation : PES6A1000320/3RS2691 EP type number : 9 400 084 031 Governor Governor design. : RSV400...900A7C2209-: 9 420 083 262 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CT 8.3 L 1st version kW : 154.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inler temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening. pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - \* : 0.50 (0.75)Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 9.60...12.00 & maximum rack tra: 21.00 Difference \* CS : 3.00...4.00 BASIC SETTING 1st speed rpm: 860 Rack travel in mm : 13.30...13.40 Del.quantity cm3/: 14.1...14.3 100 s: (13.9...14.5) Spread cm3 : 0.3100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.7...5.9 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 6.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 860 Speed : 141.5...143.5 Del.quantity 1000 : (139.5...145.5) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

1st version Control lever

position degrees: 107...115

Testing:

1st rack travel in: 12.30 rrom : 928...932 Speed 2nd rack travel in: 4.00

Speed rpm : 973...985 4th rack travel in: 1100

rpn : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 76...84

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00 Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 13.30...13.40

2nd speed rpm : 600

Rack travel in m: 13.30...13.50

5th speed rpm : 450

Rack travel in m: 13.70...14.30

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 928...932

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (132.0...158.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 18.0...22.0

1000 s: (15.5...24.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam 50 rotation angle after start of delivery,

cylinder 1

**APPLICATION** 

Generator

C17

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 Note remarks Test sheet : MB Edition : 29.06.92 Phasing : 0-90-180-270 Replaces Test oil : ISO-4113 Tolerance + - \* : 0.50 (0.75) Combination no. : 9 400 085 339 BASIC SETTING Injection pump 1st speed rpm : 1300Pump designation : PES4A95D41ORS2774 EP type number : 9 400 084 019 Rack travel in mm : 11.40...11.50 Governor Governor design. : RQV300...1300AB1066-Del.quantity cm3/: 9.9...10.1 11L : 9 420 080 309 Governer no. 100 s: (9.7...10.3) Customer-spec. information Spread cm3 : 0.3Customer : MERCEDES-BENZ 100 s: (0.6) Engine : OM 364 LA rpm : 300.0 2nd speed 1st version kW : 100.0 Rack travel in mm: 6.9...7.1 Rated speed : 2600 Deliquantity cm3/: 0.7...4.3 100 s: (0.5...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 419 992 198 GUIDE SLEEVE TRAVEL rpm : 1350 1st speed Inlet press., bar: 1.50 travel mm : 8.10...8.30 2nd speed rpm : 300 Test nozzle holder travel mm : 0.80...1.30 : 0 681 343 009 assembly 3rd speed rpm : 700 travel mm : 4.00...4.50 Opening 4th speed : 1000 rpm pressure, bar : 172...175 travel mm : 5.50...6.00 : 1450 5th speed rpm travel mm : 8.90...9.40 Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 rpm : 1395 x Length mm : 6.00x1.50x600 Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 1300BEGINNING OF DELIVERY Aneroid pressure h: 800 Del.quantity 1000 Test pressure, bar: 25...27 : 99.0...101.0 : (97.0...103.0) : 3.20...3.30 Prestroke mm Spread cm3 : 3.50 : (3.15...3.35) 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 107...115

Testina:

1st rack travel in: 10.40

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1445...1475 Speed

4th rack travel in: 1600

Speed rom : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 64...72

Testing:

Speed rpm : 100 Minimum rack trave: 9.00

rpm : 300Speed

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 450...600

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.40...11.50

2nd speed

nd speed rpm : 500 Rack travel in m: 11.80...11.90

3rd speed rpm : 1050

Rack travel in m: 11.60...11.70

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 rom Pressure hPa : 800

Rack travel mm : 11.80...11.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.80

2nd pressure hPa : 320 Rack travel in m: 9.20...9.40

3rd pressure hPa : 500

Rack travel in m: 10.70...11.00

START CUT-OUT

1/min : 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 700

Del.quantity cm3/: 96.0...99.0 1000 s: (93.5...101.5)

Aneroid pressure h: 800 : 1050 Speed rpm

Del.quantity cm3/: 98.0...101.0

1000 s: (95.5...103.5)

Anaroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 42.5...44.5 1000 s: (40.5...46.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 80.0...92.0

1000 s: (77.0...95.0)

Rack travel in mm : 13.30...13.50

Remarks:

**C19** 

Note remarks

Test sheet

Edition : 30.04.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 344

Injection pump

Pump designation : PES6A95D41URS2772

EP type number : 9 400 084 018

Sevention

Governor design. : RSV350...900A7C2076L

Governer no. : 9 420 083 251

Customer-spec, information

Customer : MERCEDES-BENZ

Engine : OM 366A

1st version kW : 107.3 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 : (3.15...3.35) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - \* : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 860

Rack travel in mm : 10.40...10.50

Del.guantity cm3/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.4...1.0

100 s: (0.2...1.2)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

Del.quantity : 85.5...87.5 1000 : (83.5...89.5)

: 3,50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 9.40

rpm : 905...910 Speed 2nd rack travel in: 4.00

rpm : 930...943 Speed

4th rack travel in: 1100

Speed : 0.30...1.70 rpm

020

LOW IDLE 1 Control lever

position degrees: 74...82

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speeci rom : 370...430

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

5th speed rpm : 400

Rack travel in m: 11.00...11.60

## **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 78.0...90.0

1000 s: (75.0...93.0)

Rack travel in mm : 12.70...12.90

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 4.0...10.0 1000 s: (2.0...12.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

**APPLICATION** 

Generator

Note remarks

Test sheet

: 30.04.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 345

Injection pump

Pump designation : PES6A95D41DRS2795

: 9 400 084 020 EP type number

Governor

: RSV350...900A7c2076-Governor design.

1L

: 9 420 083 252 Governer no.

Customer-spec, information

: MERCEDES-BENZ Customer

Engine : 0M 366

1st version kW : 77.3 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - \* : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 860

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 6.4...6.6

100 s: (6.2...6.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 0.6...1.2

100 s: (0.4...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

: 64.5...66.5 Del.quantity

1000 : (62.5...68.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Testina:

1st rack travel in: 8.00

rpm : 910...915 Speed

2nd rack travel in: 4.00

rpm : 931...944 Speed

4th rack travel in: 1100

Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 76...84 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 6.50...6.70 Rack travel in mm: 2.00 : 380...440 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 860 Rack travel in m: 9.00...9.10 2nd speed rpm : 500 Rack travel in m: 9.00...9.20 5th speed rpm : 400 Rack travel in m: 9.70...10.30 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.00 Speed rpm : 910...915 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 78.0...90.0 1000 s: (75.0...93.0) Rack travel in mm: 12.90...13.10 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.50,...6.70 Del.quantity cm3/: 6.0...12.0 1000 s: (4.0...14.0) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

**APPLICATION** 

Generator

Note remarks

Test sheet

: MB Edition

Replaces

: 30.04.92

Test oil

: ISO-4113

Combination no.

: 9 4**00** 085 346

Injection pump

Pump designation : PES4A95D410RS2805 EP type number : 9 400 084 026

Governor

Governor design.

: RSV350...900A7c2076-

Governer no.

: 9 420 083 253

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: OM 364

1st version kW

: 46.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order

: 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - \*

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 860

Rack travel in mm : 8.60...8.70

Del.quantity cm3/ : 5.7...5.9

100 s: (5.5...6.1)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.4...1.0

100 s: (0.2...1.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 6.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 860

Del.quantity

. 57.5...59.5 1000 : (55.5...61.5)

Spread

: 3.50

1000 : (6.00)

cm3

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

Speed

1st rack travel in: 7.60

Speed

rpm : 910...915

2nd rack travel in: 4.00

rpm : 931...944

4th rack travel in: 1100

Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.0 Testina: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 380...440 Speed TORQUE CONTROL Torque control curve - 1st version rpn:: 860 1st speed Rack travel in m: 8.60...8.70 2nd speed rpm : 500 Rack travel in m: 8.60...8.80 5th speed rpm : 400 Rack travel in m: 9.30...9.90 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.60 rom : 910...915 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 78.0...90.0 1000 s: (75.0...93.0) Rack travel in mm : 13.30...13.50 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 4.5...10.5 1000 s: (2.5...12.5) Spread cm3 : 3.501000 s: (5.50) Remarks:

APPLICATION

Generator

Note remarks

Test sheet

: MB

Edition

: 29.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 087 390AA

Injection pump

Pump designation : PES6P120A720LS7114-3

EP type number

: 0 412 726 820

Governor

Governor design. : RQ300/1050PA911

Governer no.

: 0 421 801 476

Customer-spec, information

Customer

: MERCEDES-BENZ

Engine

: OM447 LA

1st version kW

: 257.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 019

Openina .

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

: (5.15...5.35)

Firing order

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 300.0

Rack travel in mm : 5.8...6.2 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 500

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 600

Aneroid pressure h: 1000 Del.quantity : 194.0...196.0

1000 : (191.0...199.0)

Spread

: 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rom

: 600

Rack travel in mm: 20.0

C26

Testing:

1st rack travel in: 11.30

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

Speed rpm : 1150...1180 4th rack travel in: 1300

rom : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0 : 300 Speed rom

Rack travel in mm : 5.80...6.20

Rack travel in mm: 2.00 Speed : 360...400 nom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 man Pressure hPa : 1000

Rack travel mm : 12.30...12.50

Measurement

1/min: 600 Speed

1st pressure hPa : 300

Rack travel in m: 11.30...11.50

2nd pressure hPa : 400

Rack travel in m: 10.40...10.60

3rd pressure hPa : -

Rack travel in m: 9.30...9.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 1050 Speed

Del.quantity cm3/: 198.5...201.5 1000 s: (195.5...204.5)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1200 : 750 Speed rpm

Del.quantity cm3/: 202.5...205.5 1000 s: (199.5...208.5)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed : 500 rpm

Del.quantity cm3/: 128.5...130.5

1000 s: (125.5...133.5)

cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 240.0...260.0

:

1000 s: (236.0...264.0)

Remarks:

C27

Note remarks

Test sheet

Edition : 29.06.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 425AA

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 725 824

Governor

Governor design. : RQ300/1050PA911-1

: 0 421 801 481 Governer no.

Customer-spec, information

: MERCEDES-BENZ Customer

: 0M447 LA Engine

1st version kW : 294.0

: 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5,15)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.8...6.2

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 194.0...199.0)

: 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 man Rack travel in mm: 20.0

Testing: 1st rack travel in: 11.30 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.0 Speed : 300 rom Rack travel in mm : 5.80...6.20 Rack travel in mm : 2.00 rpm : 360...400 Speed Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 600 Pressure hPa : 1000 Rack travel mm : 12.30...12.50 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 400 Rack travel in m: 10.40...10.60 3rd pressure hPa : -Rack travel in m: 9.30...9.80 START CUT-OUT Speed 1/min : 220 (248) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm: 1050 Del.quantity cm3/: 198.5...201.5 1000 s: (195.5...204.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed : 750 rpm Del.quantity cm3/: 202.5...205.5 1000 s: (199.5...208.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -

rpm : 500

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 250.0...270.0 1000 s: (246.0...274.0)

Remarks:

001

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 29.06.92 Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 087 425AB Injection pump Pump designation : PES6P120A720LS7181 EP type number : 0 412 726 824 Governor Governor design. : RQ300/1050PA911-1 Governer no. : 0 421 801 481 Customer-spec. information Customer : MERCEDES-BENZ : 0M447 LA Engine : 294.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 019 assembly Opening . pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness

: 6.00x1.50x1000

(A) Injection pump setting values

per values \_\_\_\_

Insp. values in parentheses Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 6 BASIC SETTING 1st speed rpm : 600 Rack travel in mm : 13.60...13.80 Del.quantity cm3/: 22.9...23.1 100 s: (22.6...23.4) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 300.0Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 800 : 229.0...231.0 Del.quantity 1000 : (226.0...234.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Setting point: Speed : 600 rom

Rack travel in mm : 20.0

x Length mm

Testing: 1st rack travel in: 12.70 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rom : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 : 300 Speed rpm Rack travel in mm : 5.80...6.20 Rack travel in mm : 2.00 Speed rom : 360...400 TORQUE CONTROL Dimension a mm : 0.40 : 1050 2nd speed rom Rack travel in m: 13.60...13.80 3rd speed rom : 700 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed COM : 600 Pressure hPa : 800 Rack travel mm : 13.60...13.80 Measurement  $1/\min : 600$ Speed 1st pressure hPa : 300 Rack travel in m: 11.20...11.40 2nd pressure hPa : 600 Rack travel in m: 13.10...13.30 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 4th pressure hPa : 1100 Rack travel in m: 13.90...14.10 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 1050

Del.quantity cm3/: 229.0...233.0 1000 s: (226.0...236.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 : 800 Speed rpm Del.quantity cm3/: 244.0...247.0 1000 s: (241.0...250.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed man Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70

STARTING FUEL DELIVERY

Speed

Speed rpm : 190 Del.quantity cm3/ : 250.0...270.0

1000 s: (246.0...274.0)

rpm : 1095...1110

Remarks:

:

Note remarks

Test sheet

: MB : 29.06.92 Edition : 03.92 Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 087 433

Injection pump

Pump designation : PES6P120A720LS7176

EP type number

: 0 412 726 821

Governor

Governor design: RQ300/1050PA911-4

Governer no.

: 9 420 080 318

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: OM447 A

1st version kW

: 210.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Openina (

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test Lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

Rack travel in mm : 9.00...12.00

: (5.15...5.35)

Firing order

: 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 21.5...21.7

100 s: (21.2...22.0)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 300.0

Rack travel in mm: 6.0...6.4

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread

2nd speed

cm3 : 0.6

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

Speed

rpm : 600

Aneroid pressure h: 800

Del.quantity

: 215.5...217.5 1000 : (212.5...220.5)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed

rpm : 600

Rack travel in mm : 20.0

Testing: 1st rack travel in: 12.60 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1260 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testina: Speed : 200 rpm Minimum rack trave: 7.70 : 300 rpm Rack travel in mm : 6.00...6.40 Rack travel in mm : 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.60...13.80 2nd speed rpm : 750 Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rom Pressure hPa : 800 Rack travel mm : 14.50...14.70 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 550 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1050 Rack travel in m: 14.70...14.80 4th pressure hPa : Rack travel in m: 10.70...11.00 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

005

Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/ : 192.5...196.5 1000 s: (189.5...199.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 Speed : 750 man Del.quantity cm3/: 220.0...223.0 1000 s: (217.0...226.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: : 500 Speed rpm Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0) Spread cm3 : 8.001000 s: (12.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 205.0...225.0

1000 s: (201.0...229.0)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 12,2 h1 : 21.05.92 Edition : 09.91 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 434 Injection pump Pump designation : PE6P12DA32ORS3178 EP type number : 0 411 826 752 Governor Governor design. : RQV250...1025PA921-2 : 0 421 813 785 Governer no. Customer-spec. information Customer : VOLVO Engine : TD 122 FS 1st version kW : 287.0 Rated speed : 2050 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 25.3...25.5 100 s: (25.0...25.8) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 250.0 Rack travel in mm: 4.8...5.1 Del.quantity cm3/ : 1.7...2.2 100 s: (1.5...2.5) Spread cm3 : 0.5100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.00...1.40 travel mm 2nd speed rpm : 450 travel mm : 3.60...4.20 3rd speed rpm : 800 : 6.30...6.70 travel mm rpm : 1070 4th speed travel mm : 8.00...8.20 5th speed rpm : 1180 : 9.90...10.50 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1130 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700Aneroid pressure h: 1200

Prestroke mm

: 3.60...3.70 : (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Del.quantity : 253.0...255.0

1000 : (250.0...258.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testina:

1st rack travel in: 13.00

rpm : 1055...1065 Speed

2nd rack travel in: 4.00

Speed rpm: 1140...1170 4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 59...67

Testing:

Speed : 100 rpm Minimum rack trave: 6.40 Speed rom

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

rpm : 250...400 Specd

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom hPa : 1200 Pressure

Rack travel mm : 14.00...14.10

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 105 Rack travel in m: 10.50...10.60 3rd pressure hPa : 780

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 700

Del.quantity cm3/: 163.0...165.0

1000 s: (160.0...168.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 13.00

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 270.0...310.0 1000 s: (266.0...314.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.80...5.10 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0)

cm3 : 5.00 1000 s: (7.00) Spread

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet

: SCA

Edition

: 21.05.92

Replaces

Test oil

: ISO-4113

Combination no. : 9 400 087 456

Injection pump

Pump designation : PE6P12OA72ORS7126

EP type number

: 0 412 626 815

Governor

Governor design. : RQV200...1050PA725-5

Governer no.

: 0 421 813 814

Customer

Customer-spec. information : SCANTA

Engine

: DS11

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 019

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test Lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.00...5.10 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

800

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

Spread

rpm: 700

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.6

100 s: (0.9)

rpm : 225.0 2nd speed

Rack travel in mm: 4.5...4.9 Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.2)

Spread

cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 225

travel mm

: 1.20...1.60

2nd speed

rpm : 350

travel mm

: 2.30...2.90

3rd speed

rpm : 650

travel mm 4th speed : 4.00...4.60

travel mm

rpm : 1095

5th speed

: 8.20...8.40 rpm : 1215

travel mm

: 9.70...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200

Rack travel in mm : 8.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

Aneroid pressure h: 900

Del.quantity

: 234.0...236.0

1000 : (231.0...239.0)

cm3 Spread

: 6.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 13.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1320

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 60...68

Testing:

Speed : 100 rpm Minimum rack trave: 6.10

Speed rpm : 225

Rack travel in mm : 4.50...4.70

Rack travel in mm : 2.00

: 360...420 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 900 Pressure

Rack travel mm : 14.10...14.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.90

2nd pressure hPa : 510

Rack travel in m: 13.00...13.10

3rd pressure hPa : 250

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1050 Del.quantity cm3/: 222.0...230.0

1000 s: (220.0...232.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 150.0...154.0

1000 s: (148.0...156.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 275.0...325.0 1000 s: (271.0...329.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet : MB

: 29.06.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 459AA

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 726 824

Governor

Governor design. : RQ300/1050PA911-2

Governer no. : 9 420 080 313

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 LA Engine

1st version kW : 298.0

Rated speed : 2100 TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15) Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1050

Del.quantity 1000 : 194.5...196.5

: (191.0...199.0)

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Spread

Setting point: Speed

rpm : 600 Rack travel in mm : 20.0

Testing: 1st rack travel in: 11.30 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 Testing: Speed : 100 rpm Minimum rack trave: 9.00 : 300 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rom : 360...400 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rom hPa : 1050 Pressure Rack travel mm : 12.30...12.50 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 400 Rack travel in m: 10.40...10.60 3rd pressure hPa : -Rack travel in m: 9.30...9.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 1050 rpm Del.quantity cm3/: 194.0...196.0 1000 s: (191.0...199.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/: 197.0...200.0

1000 s: (194.0...203.0)

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0) Spread cm3: 8.00 1000 s: (12.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 265.0...285.0 1000 s: (261.0...289.0)

Remarks:

D11

Note remarks

Test sheet

Edition : 29.06.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 459AB

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 726 824

Governor

Governor design. : RQ300/1050PA911-2

: 9 420 080 313 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 LA

: 298.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.1...23.3

100 s: (22.8...23.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 231.0...236.0)

: 5.00 : (9.00)

1000

RATED SPEED

1st version

Setting point:

Speed rpm

Rack travel in mm: 20.0

Testina:

1st rack travel in: 12.70

Speed rpm : 1095...1110 2nd rack travel in: 4.00

rpm : 1130...1160 Speed

4th rack travel in: 1300

Speed rom : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0 : 300 Speed rpm

Rack travel in mm : 5.80...6.20

Rack travel in mm : 2.00 : 360...400 Speed rom

TORQUE CONTROL

Dimension a mm : 0.40 2nd speed rpm : 1050

Rack travel in m: 13.60...13.80

3rd speed rpm : 700

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Settina Speed

: 600 rpm hPa : 800 Pressure

Rack travel mm : 13.60...13.80

Measurement

1/min: 600 Speed

1st pressure hPa : 300

Rack travel in m: 11.20...11.40

2nd pressure hPa : 600

Rack travel in m: 13.10...13.30

3rd pressure hPa : 1000

Rack travel in m: 13.70...13.80 \*

4th pressure hPa : 1100

Rack travel in m: 13.90...14.10

5th pressure hPa : -

Rack travel in m: 10.20...10.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 **beea**2 rpm : 1050 Del.quantity cm3/: 222.0...226.0 1000 s: (219.0...229.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500 Speed rpm : 800

Del.quantity cm3/: 237.5...240.5

1000 s: (234.5...243.5)

Spread cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0)

Spread cm3 : 8.00 1000 s: (12.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 265.0...285.0

1000 s: (261.0...289.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet

: MB

Edition

: 29.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 087 460AA

Injection pump

Pump designation : PES6P120A720LS7114-3

EP type number

: 0 412 726 820

Governor

Governor design. : RQ300/1050PA911-3

Governer no.

: 9 420 080 314

Customer

Customer-spec. information

: MERCEDES-BENZ

Engine

: 0M447 1A

1st version kW

: 260.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Prestroke mm

Firing order

: 5.20...5.30

: (5.15...5.35)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 300.0

Rack travel in mm: 5.8...6.2

Del.quantity cm3/ : 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

travel mm 5th speed

: 6.50...6.90 rpm : 1175

travel mm

: 9.50...10.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 600

Aneroid pressure h: 1050

Del.quantity
1000

: 194.5...196.5 : (191.0...199.0)

Spread

cm3 : 5.00

1000 : (9.00)

RATED SPEED 1st version Setting point:

: 600 Speed mom Rack trave in mm : 20.0

Testina:

1st rack travel in: 11.30 rpm : 1095...1110 Speed 2nd rack travel in: 4.00

rpm : 1150...1180 Speed 4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0

Testina:

Speed : 100 rom Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 360...400 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 600 hPa : 1050 Pressure

: 12.30...12.50 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 300

Rack travel in m: 11.30...11.50

2nd pressure hPa : 400

Rack travel in m: 10.40...10.60

3rd pressure hPa : -

Rack travel in m: 9.30...9.80

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed : 1050 rom

Del.quantity cm3/: 194.0...196.0

1000 s: (191.0...199.0)

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200

Speed rpm : 750 Del.quantity cm3/ : 197.0...200.0 1000 s: (194.0...203.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 125.0...127.0

1000 s: (122.0...130.0)

cm3 : 8.00Spread 1000 s: (12.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 11.30

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

015

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 21.05.92 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 464 Injection pump Pump designation : PES6P120A720LS7257 EP type number : 9 400 087 081 Governor Governor design. : RQV300...1050PA1029 Governer no. : 9 420 080 325 Customer-spec. information Customer : MERCEDES-BEN7 Engine : OM 447 LA 1st version kW : 257.6 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Openina pressure, bar : 207...210 diameter mm : 0.8 : 1 680 750 075

Orifice plate Test lines Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.60...4.70 Prestroke mm : (4.55...4.75) Rack travel in mm : 21.00...0.00 Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

Phasing

1st speed rpm : 700Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 25.8...26.0

100 s: (25.5...26.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 5.1...5.4 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 1050 travel mm : 7.70...7.90 2nd speed : 300 rpm 0.50...1.00 travel mm : 500 3rd speed rom : 3.00...3.50 travel mm : 700 4th speed חכיו : 5.20...5.70 travel mm 5th speed : 1165 rpm

: 9.20...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1120

Speed Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1000

Del.quantity 258.0...260.0 1000 : (255.0...263.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 12.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 78...86 Testing: Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.40...13.60 ad speed rpm : 700 2nd speed Rack travel in m: 13.60...13.80 rpm : 850 3rd speed Rack travel in m: 13.60...13.80 4th speed rpm : 950 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500

hPa : 1000

Rack travel mm : 13.60...13.80

1/min: 500

Rack travel in m: 10.60...10.90

Rack travel in m: 11.10...11.30 3rd pressure hPa : 600 Rack travel in m: 12.90...13.10 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1050 Speed Del.quantity cm3/: 244.5...247.5 1000 s: (241.5...250.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed : 500 rpm Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 250.0...270.0 1000 s: (246.0...274.0) Remarks:

Pressure

Measurement

1st pressure hPa : -

2nd pressure hPa : 250

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.20...5.30 : (5.15...5.35) Note remarks Rack travel in mm : 9.00...12.00 : 1-3-5-4-2 Firing order Test sheet : MB Edition : 21.05.92 Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 9 400 087 467 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PES5P120A720LS7174 EP type number : 0 412 725 806 BASIC SETTING Governor Governor design. : RQ300/1050PA774-8 1st speed rpm: 750 Governer no. : 9 420 080 328 Rack travel in mm : 13.90...14.10 Customer-spec, information Customer : MERCEDES-BENZ Del.quantity cm3/: 19.7...19.9 Engine : OM 449 A 100 s: (19.4...20.2) 1st version kW : 170.0 Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Test oil Rack travel in mm: 6.6...7.0 inlet temp. °C Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) : 38...42 Overflow valve Spread cm3 : 0.8 : 1 419 992 198 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 assembly : 1 688 901 105 rpm : 600 Speed Rack travel in mm: 19.20...20.80 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,8 Speed rpm : 750 Aneroid pressure h: 800 Del.quantity : 197.5...199.5 1000 : (194.5...202.5) Test lines : 1 680 750 075 : 5.00 Spread cm3 Outside diameter 1000 : (9.00) x Wall thickness : 8.00x2.50x1000 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed : 600 rpm Rack travel in mm: 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 13.00

rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.8 Testing: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 300Rack travel in mm : 6.70...6.90 Rack travel in mm : 2.00 Speed rpm : 395...435 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm Pressure hPa : 800 Rack travel mm : 13.90...14.10 Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 10.90...11.20 2nd pressure hPa : 270 Rack travel in m: 11.80...11.90 3rd pressure hPa : 450 Rack travel in m: 13.10...13.40 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 rpm : 1050 Speed Del.quantity cm3/: 193.0...196.0 1000 s: (190.0...199.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

Speed

Spread

Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0) cm3 : 8.00

1000 s: (12.0)

Note remarks

Test sheet

: DEE 7,6 h 2

Edition

: 30.04.92

Replaces Test oil : 09.88 : ISO-4113

Combination no.

: 9 400 230 066

Injection pump

Pump designation : PES6A100D410RS2676

EP type number

: 9 410 230 023

Governor

Governor design.

: RSV425...1100A2C2161

-1L

Governer no.

: 9 420 234 133

Customer

Customer-spec. information : JOHN DEERE

Engine

: 6466T

1st version kW Rated speed

: 120.0

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm

: 2.45...2.55

: (2.40...2.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread

cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 2.1...2.5

100 s: (1.8...2.7)

Spread

Speed

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 500

: 99.0...101.0 Del.quantity

1000 : (97.0...103.0)

cm3

: 4.00

1000 : (6.50)

RATED SPEED

Spread

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed

rpm : 1145...1155

020

2nd rack travel in: 4.00

rpm : 1205...1215 Speed

3rd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1300

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 4.9

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 425 rpm

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.40...9.40 2nd speed rpm: 750

Rack travel in m: 10.60...10.80

Aneroid/Altitude Compensator Test

1s' version

Set.ing

: 500 Speed rpm hPa : 173 Pressure

: 10.30...10.40 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 80

Rack travel in m: 9.40...9.80

3rd pressure hPa : 500

Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500 rpm : 750

Del.quantity cm3/: 116.0...119.0

1000 s: (114.0...121.0)

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: -1000 s: (84.0...92.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

Rack travel in mm: 19.40...19.40

HIGH IDLE

1st version

Speed rpm : 1195

Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 425

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 21.0...25.0

1000 s: (18.5...27.5)

Spread cm3 : 6.001000 s: (8.00)

Remarks:

: JOHN DEERE # RE23746

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

**APPLICATION** 

Tractor (tractor engines)

Note remarks

Test sheet

: DEE 7,6 h12

Edition

: 30.04.92

Replaces

: 02.90

Test oil

: ISO-4113

Combination no. : 9 400 230 069

Injection pump

Pump designation : PES6A100D410RS2676-1

EP type number

: 9 410 230 024

Governor

Governor design.

: RSV450...1000A1C2186

-1L

Governer no.

: 9 420 234 149

Customer-spec, information Customer

: JOHN DEERE

Engine

: 6456A

1st version kW

: 140.0

Rated speed

: 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening.

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.90X600

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm

: 2.42...2.55

: (2.40.. 2.60)

Rack travel in mm: 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1000

Rack travel in mm : 11.60...11.60

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

Spread

Spread

cm3 : 0.4

100 s: (0.6)

rpm : 450.0

2nd speed Rack travel in mm: 5.8...6.0

Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity

: 121.5...123.5 1000 : (119.5...125.0)

Spread

cm3 : 4.00 1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.60 Speed rpm : 1045...1055

2nd rack travel in: 4.00

Speed rpm : 1080...1090

3rd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 23...31

Setting point w/out bumper spring

Speed rpm : 450 Rack travel in mm : 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 450

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.60...11.60

2nd speed rpm : 700

Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 700

Del.quantity cm3/: 132.0...135.0

1000 s: (130.0...137.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm: 1075

Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm : 450

D23

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE28030

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

**APPLICATION** 

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h7 Edition : 30.04.92 Replaces : 6 Test oil : ISO-4113 Combination no. : 9 400 230 072 Injection pump Pump designation : PES6A100D410RS2676 EP type number : 9 410 230 023 Governor Governor design. : RSV400...1100A2B2086 -1L : 9 420 234 109 Governer no. Customer-spec. information Customer : JOHN DEERE Engine : 6466T 1st version kW : 132.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_ BEGINNING OF DELIVERY

Firing order : 1-5-3-6-2-4Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 10.30...10.40 Del.quantity cm3/: 11.0...11.2 100 s: (10.8...11.4) Spread cm3 : 0.4100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) cm3 : 0.6 Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 700 Del.quantity : 170.0...114.0) : 4.00 Spread cm3 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 48...56 Testina: 1st rack travel in: 9.30 Speed rpm : 1145...1155

Rack travel in mm : 9.00...12.00

Prestroke mm

Test pressure, bar: 32...34

: 2.45...2.55

: (2.40...2.60)

2nd rack travel in: 4.00

rpm : 1205...1215 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 24...32

Setting point w/out bumper spring

rom : 400

Rack travel in mm: 4.8

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400 Rack travel in mm : 5.20...5.40

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.30...10.40

2nd speed rom : 750

Rack travel in m: 11.70...11.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 man

Pressure hPa : 700 : 11.70...11.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 215

Rack travel in m: 11.30...11.40

3rd pressure hPa : 65

Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750 Del.quantity cm3/ : 126.0...130.0

1000 s: (124.0...132.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 87.0...91.0

1000 s: (85.0...93.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 9.30

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

LOW IDLE

Speed

: 400 rpm

Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 13.0...17.0

1000 s: (10.5...19.5)

cm3 : 6.00

1000 s: (8.00)

Remarks:

Spread

: JOHN DEERE # RE18160

Adjustment without tarque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h9 Edition : 30.04.92 Replaces : 6 Test oil : ISO-4113 Combination no. : 9 400 230 078 Injection pump Pump designation : PES6A100D410RS2676-1 EP type number : 9 410 230 024 Governor Governor design. : RSV500...900A1B2186-Governer no. : 9 420 234 115 Customer-spec. information Customer : JOHN DEERE Engine : 6466A 1st version kW : 128.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina | pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 32...34 : 2.45...2.55 Prestroke mm : (2.40...2.60) 026

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 900 1st speed Rack travel in mm : 10.90...11.00 Del.quantity cm3/: 11.8...12.0 100 s: (11.6...12.2) Spread cm3 : 0.4100 s: (0.6) rpm : 500.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8) cm3 : 0.6 100 s: (0.8) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 : 118.0...120.0 Del.quantity 1000 : (116.0...122.0) Spread cm3 : 4.00 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 42...50 Testina: 1st rack travel in: 9.90 rpm : 930...940

Speed

2rd rack travel in: 4.00

: JOHN DEERF # RF19917

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

Speed rpm : 975...985 3rd rack travel in: 4.00 Speed rpm : 965...995 4th rack travel in: 1050 Speed

LOW IDLE 1 Control Lever

position degrees: 22...30 Setting point w/out bumper spring

rpm : 0.30...1.40

Speed rpm : 500 Rack travel in mm: 4.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 500

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.90...11.00

2nd speed rpm : 650

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 132.0...136.0

1000 s: (130.0...138.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 500

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

D27

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h 5 Edition : 30.04.92 Replaces : 12.91 Test oil : ISO-4113 Combination no. : 9 400 230 085 Injection pump Pump designation : PES6A100D410RS2676-1 EP type number : 9 410 230 024 Governor Governor design. : RSV450...1100A2c2204 Governer no. : 9 420 234 121 Customer-spec. information Customer : JOHN DEERE : 6466T Engine 1st version kW : 119.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_ BEGINNING OF DELIVERY Test pressure, bar: 32...34 D28

Prestroke mm : 2.45...2.55 : (2.40...2.60) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 9.80...9.90 Del.quantity cm3/: 9.9...10.1 100 s: (9.7...10.3) Spread cm3 : 0.4100 s: (0.6) 2nd speed rpm : 450.0Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.7...2.1 100 s: (1.5...2.4) Spread cm3 : 9.6100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 : 99.5...101.5 Del.quantity 1000 : (97.5...103.5) : 4.00 Spread cm3 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 45...53

Testing:

1st rack travel in: 8.80

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1210...1220 Speed

3rd rack travel in: 4.00

Speed rpm : 1200...1230 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 22...30

Setting point w/out bumper spring

rom : 450 Rack travel in mm: 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 450 Speed

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 9.80...9.90

rpm : 500 2nd speed

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

Del.quantity cm3/: 114.0...118.0

1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.40...5.60 Del.quantity cm3/ : 17.5...21.5 1000 s: (15.0...24.0)

Spread

cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE19919

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Note remarks

Test sheet : CUM 8,3 a 6 Edition : 7.7.92 Replaces : 12.88 Test oil : ISO-4113

Combination no. : 9 4**00** 230 109

Injection pump

Pump designation: PES6A100D320/3RS2691

EP type number : 9 410 230 030

Governor

Governor design. : RSV400...1100A0c2190

-21R

: 9 420 234 164 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT830 Engine

1st version kW : 117.1 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-130-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 7.8...8.0

Del.quantity cm3/: 3.2...3.6 100 s: (3.0...3.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 89.0...91.0 Del.quantity 1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 25...33

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 7.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 7.80...8.00

Rack travel in im: 2.00

Speed rom : 515...575

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.20...10.30

2nd speed rpm : 750

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 90.5...94.5 1000 s: (88.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1140...1150 **beed**2

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 7.80...8.00

Del.quantity cm3/: 32.5...36.5 1000 s: (30.5...38.5)

E03

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

: C.D.C. # 3911541

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

#### Note remarks

: DEE 10,1 e : 7.7.92 Test sheet Edition : 9.87 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 231 013

Injection pump

Pump designation : PES6P110A720RS379

Governor

Governor design. : RSV400...1050P0/457

Customer-spec. information Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85

: (2.70...2.90)

Rack travel in mm: 10.20

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

E04

Tolerance  $+ - ^{\circ} : 0.5 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm: 10.20

Del.quantity cm3/: 13.5...13.7

100 s: (13.2...14.0)

Spread cm3 : 0.4

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 2.1...2.7

100 s: (-)

cm3 : 0.4 Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 800

: 135.0...137.0 Del.quantity

1000 : (132.0...140.0)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control Lever

position degrees: 43...51

Testing:

1st rack travel in: 9.20

rpm : 1095...1105 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1250

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 22.5...30.5 Setting point w/out bumber spring

rpm : 436 Rack travel in mm: 5.40

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 400 Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 rpm : 520...580 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 10.20 2nd speed rpm : 630 Rack travel in m: 10.90

Aneroid/Altitude Compensator Test

1st version Setting

Speed nom : 550 hPa : 380 Pressure

Rack travel mm : 10.45...10.55

Measurement

Speed 1/min : 550

1st pressure hPa : 250

Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 630 Del.quantity cm3/ : 145.0...149.0

1000 s: (142.0...151.0)

Spread cm3 : 6.0 1000 s: (-)

Aneroid pressure h: -

Speed rpm : 550 Del.quantity cm3/ : 113.6...121.6 1000 s: (110.6...124.6)

Spread cm3 : 6.0 1000 s: (-)

**BREAKAWAY** 

1st version 1mm rack travel less than full load rack tr: 9.20

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0... 1000 s: (-)

Rack travel in mm : 19.0...21.0

HIGH IDLE

1st version

Speed rpm : 1150 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 45.0...55.0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 20.8...26.8 1000 s: (-)

Remarks:

: JOHN DEERE # AR88759

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

#### Note remarks

Test sheet : MAC 11.0 w3 Edition : 26.6.91 Replaces : 2.4.90 Test oil : ISO-4113

Combination no. : 9 400 231 187

Injection pump

Pump designation : PES6P110A720RS6005-1

Governor

Governor design. : RQV300/600...1050PA

586-3K

Cust. part no.

Customer-spec. information Customer : MACK

Engine : EM6-285

## TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.3

Test nozzle holder assembly

Openina

pressure, bar : 300...308

Test Lines : 9 681 230 727

Outside diameter x Wall thickness

: 6.35X1.70X990.6 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_

### BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - \* : 0.5 (0.75)

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 16.0...16.2

100 s: (15.8...16.4)

Spread cm3 : 0.5

100 s: (0.75)

2nd speed rpm : 300

Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 2.4...2.9

100 s: (2.2...2.9) cm3 : 0.7

Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Del.quantity

: 160.5...162.5 1000 : (158.5...164.5)

RATED SPEED

1st version

Control lever

position degrees: 56.5...61.5

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1240

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 14.5...19.5

Testing:

Speed : 250 rpm Minimum rack trave: 8.90 Speed rpm : 400

Rack travel in mm : 5.40...6.80

Rack travel in mm: 2.00

Speed rpm : 670...730

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.20...13.30

2nd speed rpm : 1000

Rack travel in m: 13.15...13.25

3rd speed rpm : 700

Rack travel in m: 13.75...13.85

4th speed rpm : 600

Rack travel in m: 14.15...14.25

5th speed rpm : 500

Rack travel in m: 13.65...13.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 184.0...189.0

1000 s: (182.0...191.0)

Speed rpm : 600 Del.quantity cm3/: 222.5...226.5 1000 s: (220.0...228.5)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...200.0

1000 s: (150.0...210.0)

Rack travel in mm: 10.60...10.70

LOW IDLE

Speed rpm : 300 Rack travel in mm : 24.5...29.5

Del.quantity cm3/: (22.5...31.5)

Remarks:

: MACK #313 GC 5148 P

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to test-

E07

ing of the injection-pump assembly with the genuine engine/nozzle-and-holder

assembly

Note inst. in remarks column

Test scheet : VMA Edition : 08.07.92 Calibrating oil : ISO-4113

Injection pump : VE3/10F1600L481 : 0 460 403 015 Type number

Customer Part-No. :

Customer-specific information

Customer : VM

Engine : HR 394 HT

Power KW: 51

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp. with thermometer : 40...48

Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1200 Speed Charge press. hPa: 1000

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed Charge press hPa: 1000 Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 67.00...68.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 600 Del. quantity cm3/

1000s.: 59.00...60.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1700 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200

Inj.—qty. cm3/

difference 1000s.: -12.00...20.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1. Speed 1/min: 1200 Overlow quantity at overflow valve: TD-travel difference mm: -0.80...1.00# 1/min: 750 1st speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 SP press.-dif.measurement electromagnet Volt: 12 Overflow: 41.70...83.40 pompa di mandata (FP) 1. Speed 1/min: 1200 ha: 1000 cm3/10s: (26.70...98.40) 1/min: 1500 quantity Charge press Supply pump 2rd speed Charge press. hPa: 1000 pressure difference Shutoff bar: -0.10...0.30\* electromagnet Volt: 12 Shutoff Overflow : 55.60...139.00 electromagnet Volt: 12 cm3/10s: (40.60...154.90) quantity Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1nd speed 1/min: 750 Charge-air pressure-setting point hPa: 350 2nd speed 1/min: 1500 hPa: 1000 mm: 3.50...4.30 mm: (3.20...4.60) Charge press LDA-stroke mm: 5.0 TD travel Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 61.50...62.50 electromagnet Volt: 12 1000s.: (59.00...65.00) 1/min: 1200 3rd speed 3rd speed 1/min: 1700 hPa: 1000 Charge press Charge press. hPa: 1000 mm: 2.40...2.80 mm: (1.90...3.30) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 1600 Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 1.30...2.10 Charge press. hPa: 1000 Shutoff mm: (1.00...2.46) electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 Shutoff electromagnet Volt: 12 1000s.: (34.00...46.00) 9th speed 1/min: 1500 Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff 2nd speed 1/min: 750 electromagnet Volt: 12 1000S:: (62.50...68.50)
12th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 3.80...4.40 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 Charge press. hPa: 1000 electromagnet Volt: 12 Del. quyntity cm3/: 67.00...68.00 1000s.: (64.50...70.50) 1/min: 750 Supply-pump pressure bar: 5.60...6.20 16th speed Shutoff Shutoff electromagnet volt: 12 Del. quantity cm3/: 55.50...59.50 1000H.: electromagnet Volt: 12 1/min: 1500 4th speed Charge press. hPa: 1000 Supply-pump 1/min: 600 18th speed pressure bar: 6.90...7.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 59.00...60.00 1000S.: (56.50...62.50) Shutoff electromagnet Volt: 12

20th speed 1/min: 750 Supply pump-Charge press. hPa: 1000 pressure : -0.10...0.30\* Shutuff difference bar: electromagnet Volt: 12 Shutoff Del. quantity cm3/: 66.50...69.50 1000s.: (65.00...71.00) electromagnet Volt: 12 Automatic starting fuel delivery: Mech. shutoff: 1st speed 1/min: 250 Electr. shutoff: Shutoff electromagnet Volt: 12 1/min: 400 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.09) 2nd speed 1/min: 450 Idle delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...70.00 1000s.: (50.00...70.00) 1/min: 400 1st speed Shutoff 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 1000s.: (3.5) Del. quantity cm3/: 60.00...110.00 1/min: 440 2nd speed 1000s.: (60.00...110.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet: Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) Cut-in 3rd speed 1/min: 550 min voltage : 10.0 Shutoff Rated voltage : 12.0 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Mounting and assembly dimensions: Designation Load-dependent start of delivery: mm: 3.2...3.4 Inj. -qty.dif.measurement: KF mm: 5.8...6.2 MS mm: 0.6...1.0 mm: 37.2...39.2 mm: 48.3...56.5 1/min: 1200 1st speed Ya Inj. qty. cm3/ : -6.00...8.00\* difference 1000s.: -Shutoff Remarks: electromagnet Volt: 12 3rd speed 1/min: 1200 Ini.-qty. cm3/: -12.0...20.0# Overflow restriction 0.55 mm - Part No. Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : 0.80...1.00# difference mm: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : VMA

Edition : 09.07.92 Calibrating oil : ISO-4113

Injection pump : VE3/10F1600L483 Type number : 0 460 403 016

Customer Part-No. :

Customer-specific information

Customer

Engine : HR 394 H

Power KW: 39

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200

Setting value mm: 2.50...2.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200

Del. quantity cm3/ 1000s.: 45.50...46.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (3.5)

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1620 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...100.00

1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -18.00...26.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1200

TD-travel

difference mm: -0.80...1.00\*

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP)

1/min: 1200 1.Speed

Supply pump pressure 2nd speed 1/min: 1700 bar: -0.10...0 30# difference Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 1620 electromagnet Volt: 12 Inspection-pump test specifications 5th speed Test specifications in parentheses Shutoff Timing-device characteristic: 2nd speed 1/min: 1500 mm: 3.60...4.40 mm: (3.30,...4.70) TD travel Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 mm: 2.50...2.90 mm: (2.00...3.40) TD travel Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 44.00...47.00 electromagnet Volt: 12 4th speed 1/min: 1000 1000s.: (42.50...48.50) 1/min: 1200 12th speed mm: 1.30...2.10 mm: (1.00...2.40) TD travel Shutoff electromagnet Volt: 12 Del. auyntity cm3/: 45.50...46.50 1000S.: (43.50...48.50) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.00...49.00 1000s.: (44.50...50.50) 1/min: 600 1st speed Supply-pump pressure bar: 2.80...3.40 Shutoff Mech. shutoff: electromagnet Volt: 12 3rd speed 1/min: 1200 Electr. shutoff: Supply-pump bar: 5.30...5.90 pressure 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 1500 Supply-pump Idle delivery: pressure bar: 6.60...7.20 Shutoff 1/min: 400 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 10.50...14.50
1000S.: (8.50...16.50)
Dispersion cm3/: 3.5 Overlow quantity at overflow valve: 1/min: 600 1st speed Shutoff 1000s.: (3.5) electromagnet Volt: 12 1/min: 550 2nd speed : 41.70...83.40 Overflow Shutoff cm3/10s: (26.70...98.40) quantity electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000S:: (0.00...3.00) 3rd speed 1/min: 440 1/min: 1500 2nd speed Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.:

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1200 Inj.-qty. cm3/ : -15.0..17.0# difference 1000s.: -Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 Inj.-qty. cm3/: -18.0..26.0\* difference 1000S .: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : -0.80...1.00\* difference mm: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Supply pumppressure : -0.10...0.30# difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation

K mm: 3.2...3.4

KF mm: 5.8...6.2

MS mm: 0.6...1.0

Ya mm: 37.2...39.2

Yb mm: 51.5...59.7

Cverflow restriction 0.55 mm - Part No...303

Note inst. in remarks column

Test scheet : OPE

: 09.07.92 Edition : 01.08.88 replaces Calibrating oil : ISO-4113

: VE4/10F2100L297 Injection pump Type number : 0 460 404 055

Customer Part-No. :

Customer-specific information

Customer : OPEL

Engine : 2,3 YDR

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mn: 840

Start of delivery

Indicator setting

Piston stroke mm: 1.0 ; D Outlet

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1500

Charge press. hPa: 1000 Setting value mm: 5.10...5.50

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Charge press hPa: 1000

Setting value bar: 5.10...5.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 62.50...63.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 38.00...39.00

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 290 Speed

Del. quantity cm3/

1000s.: 13.50...17.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 15.00...21.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

			+	Shutoff	
Start:			+	electromagnet Volt	: 12
			4.	4th speed 1/min	
	/min:		+	Charge press hPa	: 1000
Del. quantity	cm3/:	57.0059.00	+		: 1.502.30
	00s.:	57.00	+		: (1.202.60)
KSB/AFB			+	KSB/AFB	
	Volt:	12	+	valve Volt	: 12
Shutoff			+	Shutoff	
electromagnet	Volt:	12	+	electromagnet Volt	: 12
			+		: 1200
Load-dependent			+	Charge press. hPa	: 1000
Inj. aty.dif.m	easure	ement:	+	TD travel mm	: 3.704.30
			+	<b>ជា</b> ភា	: (3.304.70)
	/min:	1500	+	KSB/AFB	
	m3/		+	valve Volt	: 12
	<b>00</b> 0000000000000000000000000000000000	-10.0018.00*	+	Shutoff	
KSB/AFB			+	electromagnet Volt	: 12
valve	Volt:	12	4-	9th speed 1/min	
Shutoff			1		: 1000
electromagnet	Volt:	12	1		2.704.30 A
TD-travel dif.			1		(2.304.70)
		iniezione (SV)	1	Shutoff	. (2.50)
	/min:		1	electromagnet Volt	• 12
TD-travel	, 117 11 10	. 500	1	10th speed 1/min	
difference	mm *	-0.200.40*	Ι		: 1000
KSB/AFB	412414	0.200.40^	I		3.806.20 8
	Volt:	12	T	in traver limi	(3.206.80)
Shutoff	VOCE.	12	T	Shutoff	(3.200.00)
electromagnet	Malin	12	Ť		. 47
SP press.—dif.			1	electromagnet Volt	14
			+		
	4~ (EF	11	4	Compality security some and a	
pompa di manda			+	Supply-pump pressu	re characteristic
1.Speed 1	ta (FF /min:		‡		
1. Speed 1 Supply pump			+++++++++++++++++++++++++++++++++++++++	1st speed 1/min	: 2100
1.Speed 1 Supply pump pressure	/min:	1500	+ + + + + + + + + + + + + + + + + + + +	1st speed 1/min Charge press. hPa	
1.Speed 1 Supply pump pressure difference	/min:		† † † † †	1st speed 1/min Charge press. hPa Supply-pump	: 2100 : 1000
1.Speed 1 Supply pump pressure difference KSB/AFB	/min: bar:	-0.100.30#	+++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar	: 2100
1.Speed 1 Supply pump pressure difference KSB/AFB valve	/min:	-0.100.30#	+ + + + + + + + + + + + + + + + + + + +	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB	: 2100 : 1000 : 6.507.10
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff	/min: bar: Volt:	1500 -0.100.30# 12	++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt	: 2100 : 1000 : 6.507.10
1.Speed 1 Supply pump pressure difference KSB/AFB valve	/min: bar: Volt:	1500 -0.100.30# 12	++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff	: 2100 : 1000 : 6.507.10 : 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet	/min: bar: Volt: Volt:	1500 -0.100.30# 12 12	**************************************	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt	: 2100 : 1000 : 6.507.10 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	/min: bar: Volt: Volt: p test	1500 -0.100.30# 12 12 : specifications	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	/min: bar: Volt: Volt: p test	1500 -0.100.30# 12 12	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa	: 2100 : 1000 : 6.507.10 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection pum Test specifica	/min: bar: Volt: Volt: p test	1500 -0.100.30# 12 12 12 t specifications in parentheses	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	/min: bar: Volt: Volt: p test	1500 -0.100.30# 12 12 12 t specifications in parentheses	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device	/min: bar: Volt: Volt: p test tions charac	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1	/min: bar: Volt: Volt: p test tions charac	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:  2100	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press	/min: bar: Volt: Volt: p test tions charac /min: hPa:	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:  2100 1000	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1	/min: bar: Volt: Volt: p test tions charac /min: hPa:	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:  2100	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm:	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:  2100 1000	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt Shutoff electromagnet Volt	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm:	1500  -0.100.30#  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min	: 2100 : 1000 : 6.507.10 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm:	1500  -0.108.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: mm:	1500  -0.108.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 1200 : 1000
1. Speed 1 Supply pump bressure difference KSB/AFB valve Shutoff electromagnet  Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel  KSB/AFB valve Shutoff	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: mm: Volt:	1500  -0.100.30#  12  12  12  12  1 specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar Supply-pump pressure bar	: 2100 : 1000 : 6.507.10 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Wolt: Volt:	1500  -0.100.30#  12  12  12  12  12  12  12  13  1000  1000  7.408.20 (7.108.50)  12	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB Supply-pump pressure bar KSB/AFB	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 12 : 1200 : 1000 : 4.405.00
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Volt: /min:	1500  -0.100.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)  12  12  12 1500	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 12 : 1200 : 1000 : 4.405.00
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Volt: /min: hPa:	1500  -0.100.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)  12  12  1500 1000	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff	: 2100 : 1000 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 1200 : 1000 : 4.405.00
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Volt: /min: hPa: mm:	1500  -0.100.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)  12  1500 1000 5.105.50	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt Shutoff electromagnet Volt Shutoff electromagnet Volt Shutoff electromagnet Volt	: 2100 : 1000 : 6.507.10 : 12 : 1500 : 1500 : 1000 : 5.105.70 : 12 : 12 : 1200 : 1000 : 4.405.00 : 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press TD travel	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Volt: /min: hPa: mm:	1500  -0.100.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)  12  12  1500 1000	<del></del>	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 4th speed 1/min	: 2100 : 1009 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 1200 : 1000 : 4.405.00 : 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press TD travel KSB/AFB KSB/AFB	/min: bar: Volt: Volt: p test tions charac /min: hPa: mm: Volt: /min: hPa: mm:	1500  -0.100.30#  12  12  12  12  1specifications in parentheses eteristic:  2100 1000 7.408.20 (7.108.50)  12  12  1500 1000 5.105.50 (4.606.00)	<del></del>	1st speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 2nd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt 3rd speed 1/min Charge press. hPa Supply-pump pressure bar KSB/AFB valve Volt Shutoff electromagnet Volt Shutoff electromagnet Volt Shutoff electromagnet Volt Shutoff electromagnet Volt	: 2100 : 1009 : 6.507.10 : 12 : 12 : 1500 : 1000 : 5.105.70 : 12 : 12 : 1200 : 1000 : 4.405.00 : 12

Supply-pump	+ 9th speed 1/min: 2100
pressure bar: 4.204.80	+ Charge press. hPa: 1000
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12 + Shutoff
Overlow quantity at overflow valve:	+ electromagnet Volt: 12
A	+ Del. quantity cm3/: 50.8053.20
1st speed 1/min: 500	† 1000s.: (49.7054.30)
KSB/AFB	+ 10th speed 1/min: 800
valve Volt: 12	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	+ Shutoff
Overflow: 41.7083.40	+ electromagnet Volt: 12
quantity cm3/10s: (26.7098.40)	+ Del. quantity cm3/: 38.5041.50
2nd speed 1/min: 2100	+ 1000s.: -
Charge press. hPa: 1000	+ 12th speed 1/min: 1200
KSB/AFB	+ Charge press. hPa: 1000
valve Volt: 12	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60139.00	+ electromagnet Volt: 12
quantity cm3/10s: (40.60154.00)	+ Del. quyntity cm3/: 62.5063.50
	1000s.: (60.7065.30)
Delivery-quant. and breakaway char.:	18th speed 1/min: 500
Total y day of all of calandy of all the	+ KSB/AFB
	Valve Volt: 12
1nd speed 1/min: 800	- Shutoff
Charge-air pressure-setting	
point hPa; 500	electromagnet Volt: 12
LDA-stroke mm: 6.5	Pel. quantity cm3/: 38.0039.00
KSB/AFB	1000s.: (36.2040.80)
	+ 20th speed 1/min: 800
	+ Charge press. hPa: 1000
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Del. quantity cm3/: 55.5056.50	† Shutoff
1000s.: (53.0059.00)	+ electromagnet Volt: 12
2nd speed 1/min: 2700	+ Del. quantity cm3/: 59.5062.50
Charge press. hPa: 1000	† 1000s.: -
KSB/AFB	†
valve Volt: 12	+ Mech. shutoff:
Shutoff	†
electromagnet Volt: 12	+ Electr. shutoff:
Del. quantity cm3/: 0.003.00	†
10008.: (0.003.00)	+ 1st speed 1/min: 290
5th speed 1/min: 2500	+ Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	† 1000s.: (0.003.00)
KSB/AFB	+
valve Volt: 12	† Idle delivery:
Shutoff	+
electromagnet Volt: 12	+ 1st speed 1/min: 290
Del. quantity cm3/: 15.0021.00	+ KSB/AFB
1 <b>000</b> S.: (14.0022.00)	+ valve Volt: 12
8th speed 1/min: 2300	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
KSB/AFB	Del. quantity cm3/: 13.5017.50
valve Volt: 12	1000s.: (11.5019.50)
Shutoff	+ Dispersion cm3/: 3.0
electromagnet Volt: 12	10008.: (3.0)
Del. quantity cm3/: 35.0043.00	2nd speed 1/min: 380
1000s.: -	1
	·

KSB/AFB Del. quantity cm3/: 55.00...65.00 Volt: 12 10005.: (55.00...65.00) valve Shutoff electromagnet Volt: 12 1/min: 400 2nd speed Del. quantity cm3/: 0.00...2.60 KSB/AFB 1000s.: (0.00...2.60) valve Volt: 12 3rd speed 1/min: 320 Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12 Del. quantity cm3/: 43.00...53.00 1000s.: (43.00...53.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) 1/min: 100 3rd speed KSB/AFB Volt: 12 valve Load-dependent start of delivery: Shutoff Inj.-qty.dif.measurement: electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1000s.: (50.00...66.00) 1st speed 1/min: 1500 Inj.-qty. cm3/ : -6.00...8.00# difference 1000s.: -Shutoff electromagnet: KSB/AFB valve Volt: 12 Cut-in Shutoff min voltage : 10.0 electromagnet Volt: 12 Rated voltage : 12.0 1/min: 1500 3rd speed cm3/: -10.0...18.0\* Inj. qty. Mounting and assembly dimensions: difference 1000S .: -KSB/AFB Designation valve Volt: 12 mm: 3.2...3.4 K Shutoff KF mm: 5.6...6.0 electromagnet Volt: 12 mm: 0.8...1.2 MS mm: 20.5...22.5 TD-travel dif.measurement: mm: 59.2...73.2 correttore anticipo injezione (SV): 1/min: 1500 1st speed Remarks: TD-travel : -0.20...0.40\* Operate control lever after each difference mm: manifold-pressure compensator pressure KSB/AFB change. valve Volt: 12 Shutoff \* Correction at adjusting nut (46) electromagnet Volt: 12 SP press.—dif.measurement: Overflow restriction 0.55 mm - Part No. pompa di mandata (FP): 1/min: 1500 1st speed Supply pump-A = KSB adjustment point : -0.10...0.30# pressure B = KSB curve point difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 250 1st speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : OPE : 09.07.92 Edition replaces : 19.07.89 Calibrating oil : ISO-4113 Injection pump : VE4/10F2100L297-1 Type number : 0 460 404 056 Customer Part-No. : Customer-specific information : OPEL Customer Engine : 2,3 YDT KW: 74 Power TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle holder assembly : 1 688 901 000 Opening | Pressure bar: 147.00...150.00 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Indicator setting Piston stroke mm: 1.0 Outlet Injection pump setting values Test specifications in parentheses

valve Volt: 12 Shutoff electromagnet Volt: 12 Supply-pump pressure 1/min: 1000 Speed Charge press hPa: 1000 Setting value bar: 4.20...4.80 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 1200 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 62.50...63.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 cm3/: 3.0 Dispersion 1000s.: (3.0) Full-load del. W/out charge press.: Speed 1/min: 500 Del. quantity cm3/ 1000s.: 40.50...41.50 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Low-idle speed regulation Speed 1/min: 290 Del. quantity cm3/ 1000s.: 13.50...17.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0) Full-load speed regulation 1/min: 2500 Speed Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 15.00...21.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

AFB/AFB

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 2.70...3.10

Start:	t Stri speed 1/min: 1500
Start.	Charge press. hPa: 1000
Speed 1/min: 100	+ TD travel mm: 5.205.80
	mm: (4.806.20)
Del. quantity cm3/: 57.0059.00	
mind 1000s.: 57.00	+ valve Volt: 12
KSB/AFB	+ Shutoff
Valve Volt: 12	+ electromagnet Volt: 12
Shucoff	+ 9th speed 1/min: 300
electromagnet Volt: 12	+ Charge press. hPa: 1000
•	+ TD travel mm: 1.503.50 A
Load-dependent start of delivery:	mm: (1.303.70)
Injqty.dif.measurement:	Shutoff
and the state of t	electromagnet Volt: 12
Speed 1/min: 1000	
·	+ 10th speed 1/min: 800
Inj.—qty. cm3/ difference 1000s.: -22.0024.00	Charge press. hPa: 1000
KSB/AFB	mm: (2.906.50)
valve Volt: 12	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+
TD-travel dif.measurement	+ Supply-pump pressure characteristic:
correttore anticipo iniezione (SV)	
1.Speed 1/min: 1000	+ 1st speed 1/min: 2100
TD-travel	
difference mm: -1.201.40*	Charge press. hPa: 1000
	I a marriage
KSB/AFB	pressure bar: 6.907.50
valve Volt: 12	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	1 Shutoff
-	+ electromagnet Volt: 12
Inspection pump test specification	
Test specifications in parentheses	
Too open to actions in parentineses	Supply-pump
Timing-device characteristic:	
tilling device character istic.	
	+ KSB/AFB
2nd amount 1/mins 2400	
2nd speed 1/min: 2100	+ valve Volt: 12
Charge press hPa: 1000	+ Shutoff
Charge press hPa: 1000 TD travel mm: 8.008.80	+ Shutoff + electromagnet Volt: 12
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)	+ Shutoff
Charge press hPa: 1000 TD travel mm: 8.008.80	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12  Shutoff	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 mm: 2.703.10 mm: (2.203.60)	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 800	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 800 Charge press hPa: 1000	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 800 Charge press hPa: 1000 TD travel mm: 1.302.10	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.703.10 mm: (2.203.60)  KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 800 Charge press hPa: 1000 TD travel mm: 1.302.10 mm: (1.002.40)	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12  3rd speed 1/min: 1000 Charge press hPa: 1000 mm: (2.203.60)  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12  Shutoff electromagnet Volt: 12  Shutoff electromagnet Volt: 12  4th speed 1/min: 800 Charge press hPa: 1000 mm: 1.302.10 mm: (1.002.40)  KSB/AFB	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 500
Charge press hPa: 1000 TD travel mm: 8.008.80	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 500 KSB/AFB
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12  3rd speed 1/min: 1000 Charge press hPa: 1000 mm: (2.203.60)  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12  Shutoff electromagnet Volt: 12  Shutoff electromagnet Volt: 12  4th speed 1/min: 800 Charge press hPa: 1000 mm: 1.302.10 mm: (1.002.40)  KSB/AFB	Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.704.30 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 500

Shutoff	+	KSB/AFB
electromagnet Volt:	12	valve Volt: 12
Overflow:	41.7085.40	Shutoff
quantity cm3/10s: 2nd speed 1/min:		electromagnet Volt: 12
Charge press. hPa:		Del. quantity cm3/: 51.3053.70 1000s.: -
KSB/AFB	I	12th speed 1/min: 1200
valve Volt:	12	Charge press. hPa: 1000
Shutoff	1	KSB/AFE
electromagnet Volt:		valve Volt: 12
	55.60139.00	Shutoff
quantity cm3/10s:	(40.60154.00)	electromagnet Volt: 12
Dol i commount and	handsom chan	Del. quyntity cm3/: 62.5063.50
Delivery-quant. and	breakaway char.:	1000S.: (60.7065.30) 16th speed 1/min: 800
	Ĭ	KSB solenoid-operated
1nd speed 1/min:	800 I	valve volt: 12
Charge-air pressure		Shutoff
point hPa:	500	electromagnet volt: 12
LDA-stroke mm:	6.5	Del. quantity cm3/: 40.5043.50
KSB/AFB	+	1000H.: -
valve Volt:	12 +	18th speed 1/min: 500
Shutoff	12	KSB/AFB
electromagnet Volt: Del. quantity cm3/:		valve Volt: 12
	(53.0059.00)	Shutoff electromagnet Volt: 12
2nd speed 1/min:		Del. quantity cm3/: 40.5041.50
Charge press. hPa:		1000s.: (38.7043.30)
KSB/AFB		20th speed 1/min: 800
valve Volt:	12 +	Charge press. hPa: 1000
Shutoff	+	KSB/AFB
electromagnet Volt:		valve Volt: 12
Del. quantity cm3/:		Shutoff
5th speed 1/min:		electromagnet Volt: 12
Charge press. hPa:		Del. quantity cm3/: 60.5063.50 1000s.: -
KSB/AFB	1	10005.
valve Volt:	12 +	Mech. shutoff:
Shutoff	+	
electromagnet Volt:		Electr. shucoff:
Del. quantity cm3/:	15.0021.00	4
	(14.0022.00)	1st speed 1/min: 290
8th speed 1/min: Charge press. hPa:		Del. quantity cm3/: 0.00,3.00 1000s.: (0.003.00)
KSB/AFB	I	10003.: (0.003.00)
valve Volt:	12 I	Idle delivery:
Shutoff	1	ideo de livery.
electromagnet Volt:	12 +	1st speed 1/min: 290
Del. quantity cm3/:		KSB/AFB
	(34.0044.00)	valve Volt: 12
9th speed 1/min:		Shutoff
Charge press. hPa: KSB/AFB	1000	electromagnet Volt: 12
valve Volt:	12	hel. quantity cm3/: 13.5017.50
Shutoff	Ī	1000s.: (11.5019.50) Dispersion cm3/: 3.0
electromagnet Volt:	12 I	1000s.: (3.0)
Del. quantity cm3/:	50.3052.70	2nd speed 1/min: 380
1000s.:	(49.2053.80)	KSB/AFB
10th speed 1/min:		valve Volt: 12
Charge press. hPa:	1000 +	

Shutoff electromagnet Voit: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 320 3rd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) Load-dependent start of delivery: Inj.—qty.dif.measurement: 1/min: 1000 3rd speed cm3/: -22.0...24.0\* Inj.-qty. difference 1000s.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 1000 Inj. gty. cm3/: -1.50...1.50# difference 1000s.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 TD-travel : -1.20...1.40\* difference mm: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 TD-travel : -0.50...1.10# difference mm: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 250 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.00...63.00 1000s.: (50.00...66.00) 2nd speed 1/min: 400 KSB/AFB valve Volt: 12

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...50.00 1000s.: (40.00...50.00) 3rd speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1000s.: (50.00...66.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.6...6.0 KF MS mm: 0.8...1.2 mm: 37.9...39.9 Ya Yb mm: 39.2...44.8 Penarks: Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ..303 A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet : OPE Edition : 09.07.92 : 01.08.88 replaces Calibrating oil : ISO-4113

: VE4/10F2100L297-2 Injection pump Type number : 0 460 404 057

Customer Part-No. :

Customer-specific information Customer : OPEL

: 2,3 YDT Engine

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1000

Setting value mm: 5.10...5.50

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 62.50...63.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 38.00...39.00

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 290

Del. quantity cm3/

1000s.: 13.50...17.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 15.00...21.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

		+	Shutoff	
Start:		+	electromagnet Volt:	12
		+	4th speed 1/min:	
Speed 1/min:	100	+		1000
Del. quantity cm3/:	57.0059.00	+		1.502.30
mind 1000s.:		+		(1.202.60)
KSE/AFB		1	KSB/AFB	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Valve Volt:	12	1	valve Volt:	12
Shutoff	V 804	1	Shutoff	16
electromagnet Volt:	12	1	electromagnet Volt:	12
cicci onegice voice.	12	Ι	5th speed 1/min:	
Load-dependent star	t of dolivers	T		1000
Injqty.dif.measure		Ŧ		
arij. quy,urrimeasuri	anerit.	T		3.704.30
Speed 1/min:	1500	T		(3.304.70)
	1300	<b>†</b>	KSB/AFB	40
Injqty. cm3/	40.00 40.004	†	valve Volt:	12
	-10.0018.00#	†	Shutoff	4.0
KSB/AFB	40	†	electromagnet Volt:	
valve Volt:	12	+	9th speed 1/min:	
Shutoff	4.5	+	Charge press. hPa:	
electromagnet Volt:		+		2.704.30 A
TD-travel dif.measu		+		(2.304.70)
correttore anticipo	iniezione (SV)	+	Shutoff	
1.Speed 1/min:	1500	+	electromagnet Volt:	12
TD-travel		+	10th speed 1/min:	
difference mm:	-0.200.40#	+		1000
KSB/AFB		1		3.806.20 B
valve Volt:	12	1		(3.206.80)
Shutoff		1	Shutoff	(3.200.00)
electromagnet Volt:	12	1	electromagnet Volt:	12
SP press. dif.measu		1	etectionagnet vott.	16
pompa di mandata (FI		Ι	Supply-pump pressure	. shannataniati.
1. Speed 1/min:		Ι	adhre hain hissail	e characteristic:
Supply pump	1500	T	1st speed 1/min.	<u> 14.00</u> 0
pressure		T	1st speed 1/min:	
	-0.100.30*	Τ		1000
KSB/AFB	-0.100.30×	T	Supply-pump	4 50 7 40
valve Volt:	13	T		6.507.10
Shutoff	12	†	KSB/AFB	40
	13	†	valve Volt:	12
electromagnet Volt:	12	†	Shutoff	4.0
7		†	electromagnet Volt:	
Inspection pump test	t specifications	†	2nd speed 1/min:	
Test specifications	in parentheses	†		1000
		+	Supply-pump	
Timing-device charac	cteristic:	+	pressure bar:	5.105.70
		+	KSB/AFB	
2nd speed 1/min:	2100	+	valve Volt:	12
Charge press hPa:	1003	+	Shutoff	
TD travel mm:	7.408.20	+	electromagnet Volt:	12
	(7.10,8.50)	+	3rd speed 1/min:	
KSB/AFB		+		1000
valve Volt:	12	1	Supply-pump	1000
Shutoff		1		4.405.00
electromagnet Volt:	12	1	KSB/AFB	7,70,,,,,,,,
3rd speed 1/min:		$\perp$	valve Volt:	12
Charge press hPa:		I	Shutoff	16
	5.105.50	Ι		12
	(4.606.00)	T	electromagnet Volt:	700
KSB/AFB	(4.00,0.00)	T	4th speed 1/min:	
valve Volt:	12	T	Charge press. hPa:	(UUU
ישניים יטונן:	16	+		

Supply-pump pressure bar: Shutoff	4.204.80	† 9th speed 1/min: 2100 Charge press. hFa: 1000 KSB/AFB
electromagnet Volt:	12	- valve Volt: 12 - Shutoff
Overlow quantity at	overflow valve:	electromagnet Volt: 12  Del. quantity cm3/: 50.8053.20
1st speed 1/min: KSB/AFB	500	1000s.: (49.7054.30) 10th speed 1/min: 800
valve Volt: Shutoff	12	+ KSB/AFB + valve Volt: 12
	41.7083.40	+ Shutoff + electromagnet Volt: 12
quantity cm3/10s: 2nd speed 1/min:	2100	Del. quantity cm3/: 38.5041.50 1000s.: -
Charge press. hPa: KSB/AFB		12th speed 1/min: 1200 Charge press. hPa: 1000
valve Volt: Shutoff		KSB/AFB valve Volt: 12
	55.60139.00	Shutoff electromagnet Volt: 12
quantity cm3/10s:		Del. quyntity cm3/: 62.5063.50 1000s.: (60.7065.30)
Delivery-quant. and	breakaway char.;	18th speed 1/min: 500 KSB/AFB
1nd speed 1/min:		+ valve Volt: 12 + Shutoff
Charge-air pressure- point hPa:		electromagnet Volt: 12
LDA-stroke mm:		+ Det. quantity cm3/: 38.0039.00 + 1000s.: (36.2040.80)
KSB/AFB valve Volt:	12	+ 20th speed 1/min: 800 + Charge press. hPa: 1000
Shutoff	16	+ KSB/AFB
electromagnet Volt:		+ valve Volt: 12
Del. quantity cm3/:	55.5056.50 (53.0059.00)	+ Shutoff
2nd speed 1/min:		electromagnet Volt: 12
Charge press. hPa: KSB/AFB	1000	Del. quantity cm3/: 59.5062.50 1000s.: -
valve Volt: Shutoff		Mech. shutoff:
electromagnet Volt: Del. quantity cm3/:		Electr. shutoff:
10008.:	(0.003.00)	1st speed 1/min: 290
5th speed 1/min: Charge press. hPa: KSB/AFB		Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
valve Volt: Shutoff	12	Idle delivery:
electromagnet Volt:		+ 1st speed 1/min: 290
Del. quantity cm3/: 1000s.:	15.0021.00 (14.0022.00)	+ KSB/AFB + valve Volt: 12
8th speed 1/min:	2300	+ Shutoff
Charge press. hPa: KSB/AFB		electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
valve Volt: Shutoff	77	1000s.: (11.5019.50) Dispersion cm3/: 3.0
electromagnet Volt:	12	10005.: (3.0)
Del. quantity cm3/: 1000s.:	35.0043.00	- 2nd speed 1/min: 380
		1

KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) 1/min: 320 3rd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.—aty. cm3/ : -6.00...8.00\* difference 1000s .: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1500 3rd speed cm3/: -10.0...18.0# Inj.-gty. difference 1000s.: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : -0.20...0.40# TD-travel difference mm: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pumppressure : -0.10...0.30\* difference bar: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 250 KSB/AFB valve **Volt: 12** Shutoff

Del. quantity cm3/: 55.00...65.00 1090s.: (55.00...65.00) 1/min: 400 2nd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...53.00 1000s.: (43.00...53.00) 1/min: 100 3rd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1000s.: (50.00...66.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Raced voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 mm: 5.6...6.0 KF mm: 0.8...1.2 MS LDA stroke mm: 6.5 mm: 5.0...7.0 Ya Yb mm: 42.5...52.5 Remarks: Operate commtrol lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ..303 A = KSB adjustment point B = KSB curve point

electromagnet Volt: 12

Note inst. in remarks column

Test scheet : **SOF** 

Edition : 01.07.92 replaces : 18.07.89 Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R318 Type number : 0 460 404 059

Customer-specific information Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power KW: 83

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Indicator setting Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 600 Speed Charge press. hPa: 800 Setting value mm: 1.10...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 600 Charge press hPa: 800 Setting value bar: 3.40...4.00 Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1950 Charge press, hPa: 800

Del. quantity cm3/

1000s.: 56.00...57.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load dei. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/ 1000s.: 12.50...16.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2475 Charge press hPa: 800 Del. quantity cm3/ 1000s.: 14.00...20.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...85.00

1000s .: 55.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min:	600	<b>-</b>	Supply-pump	
Inj.—qty. cm3/	+	-	pressure bar:	5.205.80
difference 1000s.:	13.0019.00#	-	Shutoff	
Shutoff	4	-	electromagnet Volt:	12
electromagnet Volt:	12	_	3rd speed 1/min:	2000
TD-travel dif.measu		_	Charge press. hPa:	
correttore anticipo		_	Supply-pump	000
1. Speed 1/min:			pressure bar:	7 20 7 90
TD-travel	7			1.201.00
	0.600.80#	-	Shutoff	40
	U.OUU.OU#	-	electromagnet Volt:	12
Shutoff	1	-		
electromagnet Volt:		-	Overlow quantity at	overflow valve:
SP press.—dif.measu		-		
pompa di mandata (Fl	P)	-	1st speed 1/min:	500
1.Speed 1/min:	600	-	Shutoff	
Supply pump	1	_	electromagnet Volt:	12
pressure	1		Overflow :	41 70 83 30
	0.100.30'	L	quantity cm3/10s:	
Shutoff	1			
	12		2nd speed 1/min:	
electromagnet Volt:	16 †	-	Charge press. hPa:	800
_	†	-	Shutoff	
Inspection pump test		-	electromagnet Volt:	12
Test specifications	in parentheses +	-	Overflow :	55.60139.00
·	· .		quantity cm3/10s:	
Timing-device charac	cteristic:		, , , , , , , , , , , , , , , , , , ,	***************************************
9			Delivery-quant. and	hreakauay char
1st speed 1/min:	400		becavery quarter and	Dicanaway chai.
Charge press hPa:				
TD travel mm:	1.101.50		And mand (1 /min)	(1)O.
		-	1nd speed 1/min:	
	(0.801.80)	-	Charge-air pressure	-setting
electromagnet Volt:	12	-	point hPa:	
2nd speed 1/min:		-	LDA-stroke mm:	5.3
Charge press hPa:	800 +	-	Shutoff	
TD travel man:	4.205.00		electromagnet Volt:	12
	(3.905.30)	-	Del. quantity cm3/:	53 00 54 00
Shutoff			10005	(51.0056.00)
electromagnet Volt:	12		2nd speed 1/min:	
3rd speed 1/min:				
			Charge press. hPa:	000
Charge press hPa:	0.70	-	Shutoff	40
	8.709.50		electromagnet Volt:	
	(8.409.80)	-	Del. quantity cm3/:	
Shutoff	+	-	1000s.:	- Marie
electromagnet Volt:	12 +	-	3rd speed 1/min:	2475
4th speed 1/min:	2300 ‡	-	Charge press. hPa:	
Charge press hPa:		-	Shutoff	
	10.0010.80		electromagnet Volt:	12
	(10.0010.80)			
Shutoff	10.000.		Del. quantity cm3/:	
	12			(11.0023.00)
electromagnet Volt:	12	_	4th speed 1/min:	
	<b>.</b>	-	Charge press. hPa:	800
Supply-pump pressure	e characteristic:	-	Shutoff	
	4	_	electromagnet Volt:	12
1st speed 1/min:	600 4	_	Del. quantity cm3/:	31.0039.00
Charge press. hPa:		_	10005.:	
Supply-pump	T	L	5th speed 1/min:	
	3.404.00	_		
	J.4U4.UU	-	Charge press. hPa:	OUU
Shutoff	t	-	Shutoff	4.00
electromagnet Volt:		-	electromagnet Volt:	12
2nd speed 1/min:	1200 +	-	Del. quantity cm3/:	54.0057.00
Charge press, hPa:	800 1	_	10005	(53 30 57 70)

1/min: 1950 6th speed TD-travel dif.measurement: Charge press. hPa: 800 correttore anticipo in ezione (SV): Shutoff 1/min: 600 1st speed : 0.60...0.80# electromagnet Volt: 12 TD-travel Del. quantity cm3/: 56.00...57.00 mm: (0.60...0.80) difference 1000s.: (54.50...58.50) Shutoff 1/min: 1200 7th speed electromagnet Volt: 12 Charge press. hPa: 800 Shutoff SP press. dif.measurement: electromagnet Volt: 12 pompa di mandata (FP): Del. quantity cm3/: 62.50...65.50 1000s.: -1st speed 1/min: 600 Supply pump-1/min: 500 8th speed pressure : 0.10...0.30 Shutoff difference bar: (0.10...0.30) electromagnet Volt: 12 Shutoff Del. quantity cm3/: 42.50...43.50 electromagnet Volt: 12 1000s.: (40.50...45.50) Automatic starting fuel delivery: Mech. shutoff: 1/min: 350 1st speed Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...70.00 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (50.00...70.00) 1000s.: (0.00...3.00) 1/min: 100 4th speed Idle delivery: Shutoff electromagnet Volt: 12 1/min: 425 Del. quantity cm3/: 55.00...85.00 1st speed Shutoff 1000s.: (55.00...85.00) electromagnet Volt: 12 Del. quantity cm3/: 12.50...16.50 1000s.: (10.50...18.50) Dispersion cm3/: 3.0 Shutoff electromagnet: Cut-in 1000s.: (3.0) min voltage 1/min: 500 2nd speed Rated voltage : 12.0 Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: Del. quantity cm3/: 5.50...10.50 1000s.: (5.50...10.50) mm: 5.6...6.0 mm: 1.6...2.0 KF 1/min: 700 3rd speed MS Shutoff XK mm: 20.0...22.0 electromagnet Volt: 12 Del. quantity cm3/: 2.00...5.00 1000s.: (2.00...5.00) mm: 11.8...15.2 XL mm: 37.9...39.9 Ya mm: 41.6...47.2 Load-dependent start of delivery: Remarks: Inj.-qty.dif.measurement: Overflow restriction 0.55 mm - Part No. ..303 1/min: 600 1st speed Inj. qty. cm3/ : 13.00..19.00# difference 1000s.: (13.00...19.00) \* Correction at adjusting nut (46) Shutoff electromagnet Volt: 12 1/min: 600 cm3/: 11.00..13.00' 2nd speed Inj.-qty. difference 1000s.: (11.00...13.00) Shutoff

electromagnet Volt: 12

Note inst. in remarks column

Test scheet : SOF Edition : 03.07.92 replaces : 17.07.89 Calibrating oil : ISO-4113

: VE4/10F2050R361 Injection pump Type number : 0 460 404 064

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8144.97.2280

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Charge press. hPa: 1000

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 62.50...63.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Del. quantity cm3/

1000s.: 35.50...36.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.7 1000S.: (2.7)

Residual-Delivery Setting

1/min: 500 Speed Del. quantity cm3/

1000s.: 3.00...7.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...90.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:	Charge press. hPa:	1000
<pre>injqty.dif.measurement:</pre>	Supply-pump	.000
+		4.104.70
Speed 1/min: 1000	Shutoff	***************************************
Charge press hPa: 1000	electromagnet Volt:	12
Inj.—qty. cm3/	2nd speed 1/min:	
difference 1000s.: 14.5820.50#	Charge press. hPa:	
Shutoff	Supply-pump	1000
electromagnet Volt: 12	pressure bar:	5.105.70
TD-travel dif.measurement	Shutoff	
correttore anticipo iniezione (SV)	electromagnet Volt:	12
1.Speed 1/min: 1000 +	3rd speed 1/min:	
Charge press hPa: 1000	Charge press. hPa:	
TD-travel +	Supply-pump	
difference mi: 0.600.30#	pressure ban:	7.307.90
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt:	12
SP pressdif.measurement	-	
pompa di mandata (FP)	Overlow quantity at	overflow valve:
1.Speed 1/min: 1000	,	
Charge press hPa: 1000	1st speed 1/min:	500
Supply pump	Shutoff	
pressure	electromagnet Volt:	12
difference bar: 0.100.30*		41.7083.40
Shutoff	quantity cm3/10s:	(41.7083.40)
electromagnet Volt: 12	2rd speed 1/min:	
+	Charge press. hPa:	
Inspection pump test specifications +	Shutoff	
Test specifications in parentheses +	electromagnet Volt:	12
+		55.60139.00
Timing-device characteristic:	quantity cm3/10s:	
	quality chories.	(32,00,00)
+	qualitately cally igs.	(33.03137.00)
2nd speed 1/min: 2200	•	
Charge press hPa: 1000	Delivery-quant. and	
Charge press hPa: 1000 TD travel mm: 8.008.80	•	
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)	•	breakaway char.:
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutof;	Delivery-quant. and Ind speed 1/min:	breakaway char.:
Charge press hPa: 1000 mm: 8.008.80 mm: (7.709.10)	Delivery-quant. and  1nd speed 1/min: Charge-air pressure point hPa:	breakaway char.: 800 -setting
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000	Delivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa:	breakaway char.: 800 -setting
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000	Delivery-quant. and  1nd speed 1/min: Charge-air pressure point hPa:	breakaway char.: 800 -setting 400
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutof† electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20	Delivery-quant. and  1nd speed 1/min: Charge-air pressure point hPa: LDA-stroke mm:	breakaway char.: 800 -setting 400 4.8
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutof** electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)	Delivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff	breakaway char.:  800 -setting 400 4.8
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70) Shutoff	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	800 -setting 400 4.8 12 52.5053.50 (50.5055.50)
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutof† electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70) Shutoff electromagnet Volt: 12	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/:	800 -setting 400 4.8 12 52.5053.50 (50.5055.50)
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70) Shutoff electromagnet Volt: 12 4th speed 1/min: 600	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70) Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600
Charge press hPa: 1000  TD travel mm: 8.008.80  mm: (7.709.10)  Shutoff electromagnet Volt: 12  3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20  mm: (2.303.70)  Shutoff electromagnet Volt: 12  4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff	Oelivery-quant. and  Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	800 -setting 400 4.8 12 52.5053.50 (50.5055.50) 2600 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutof† electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/:	800 -setting 400 4.8 12 52.5053.50 (50.5055.50) 2600 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutof; electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutof† electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press. hPa: 1000	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 7.408.20	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 7.408.20 mm: (7.108.50)	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: Shutoff electromagnet Volt: Del. quantity cm3/:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 -2500 1000  12 21.0027.00
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press. hPa: 1000 TD travel mm: 7.408.20 mm: (7.108.50)  Shutoff	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00)
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 7.408.20 mm: (7.108.50)	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00) 2300
Charge press hPa: 1000 TD travel mm: 8.008.80	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00) 2300
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press. hPa: 1000 TD travel mm: 7.408.20 mm: (7.108.50)  Shutoff	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min:	breakaway char.:  800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00) 2300
Charge press hPa: 1000 TD travel mm: 8.008.80 mm: (7.709.10)  Shutoff electromagnet Volt: 12 3rd speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.803.20 mm: (2.303.70)  Shutoff electromagnet Volt: 12 4th speed 1/min: 600 Charge press hPa: 1000 TD travel mm: 0.601.40 mm: (0.301.70)  Shutoff electromagnet Volt: 12 6th speed 1/min: 2000 Charge press. hPa: 1000 TD travel mm: 7.408.20 mm: (7.108.50)  Shutoff electromagnet Volt: 12  Supply-pump pressure characteristic:	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa:	800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00) 2300 1000
Charge press hPa: 1000 TD travel mm: 8.008.80	Ind speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: Shutoff	800 -setting 400 4.8  12 52.5053.50 (50.5055.50) 2600 1000  12 0.007.00 - 2500 1000  12 21.0027.00 (20.0028.00) 2300 1000

	+ electromagnet Volt: 12
1000\$.: (52.8057.20)	+ Del. quantity cm3/: 1.004.00
10th speed 1/min: 1950	10008.: -
Charge press. hPa: 1000	+
Shutoff	+ Load-dependent start of delivery:
electromagnet Volt: 12	+ Injqty.dif.measurement:
Del. quantity cm3/: 56.501.50	+
1000s.: -	+ 2nd speed 1/min: 1000
11th speed 1/min: 800	+ Charge press. hPa: 1000
Charge press. hPa: 1000	Injqty. cm3/: 12.0014.00* difference 1000S.: (12.0014.00)
Shutoff	
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 58.0061.00	+ electromagnet Volt: 12
1000s.: -	+ 4th speed 1/min: 1000
12th speed 1/min: 1200	+ Charge press. hPa: 1000
Charge press. hPa: 1000	+ Injqty. cm3/: 14.5020.50#
Shutoff	+ difference 1000s.: (13.5021.50)
electromagnet Volt: 12	+ Shutoff
Del. quyntity cm3/: 62.5063.50	+ electromagnet Volt: 12
1000\$.: (61.0065.00)	+ 2nd speed 1/min: 1000
18th speed 1/min: 500	+ Charge press. hPa: 1000
Shutoff	+ TD-travel : 0.600.80#
electromagnet Volt: 12	+ difference mm: (0.600.80)
Del. quantity cm3/: 35.5036.50	+ Shutoff
1000s.: (33.5038.50)	+ electromagnet Volt: 12
	+ 2nd speed 1/min: 1000
Mech. shutoff:	+ Charge press. hPa: 1000
	+ Supply pump-
Electr. shutoff:	+ pressure : 0.100.30*
	+ difference bar: (0.100.30)
1st speed 1/min: 425	+ Shutoff
Del. quantity cm3/: 0.003.00	+ electromagnet Volt: 12
Petr qualities (10) . 0.005.00	
10005 + (0.00 3.00)	To contain the state of the sta
1000s.: (0.003.00)	+
1000s.: (0.003.00)	Part-load del.at 3rd injqty.
1000S.: (0.003.00)  Damper set qty.:	Part-load del.at 3rd injqty. terza fermo della portata
1000S.: (0.003.00)  Damper set qty.:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set)
1000S.: (0.003.00)  Damper set qty.:  LFG-setting:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF)
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF)
1000S.: (0.003.00)  Damper set qty.:  LFG-setting:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF)
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidate con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidate con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Voit: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00)	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00)  2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00 1000s.: -	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000S.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidate con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000s.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00 1000s.: -  Residual:	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00
1000s.: (0.003.00)  Damper set qty.:  LFG-setting: solidate con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12
Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00 1000s.: (65.0095.00)
Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00 1000s.: (65.0095.00)  2nd speed 1/min: 350
Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000S.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00 1000S.: -  Residual:  1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.007.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000S.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00 1000S.: (65.0095.00)  2nd speed 1/min: 350 Shutoff
Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000S.: (8.0014.00)  2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00 1000S.: -  Residual:  1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.007.00 1000S.: (2.008.00)	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000s.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00 1000s.: (65.0095.00)  2nd speed 1/min: 350 Shutoff electromagnet Volt: 12
Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.0013.00 1000S.: (8.0014.00) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.009.00 1000S.: -  Residual:  1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.007.00	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0  1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.0044.00 1000S.: (40.5045.50)  Automatic starting fuel delivery:  1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.0095.00 1000S.: (65.0095.00)  2nd speed 1/min: 350 Shutoff

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

## Mounting and assembly dimensions:

KF mm: 5.6...6.0 mm: 1.6...2.0 mm: 33.0...35.0 mm: 49.7...55.3 MS Ya

Yb

# Ajustement Potentiometer:

Angle for

": - 12<-ARF pot.

Supply voltage

pot. voit: 5.00

Output volt

volt: 2.41 pot.

Remarks:

Note inst. in remarks column

Test scheet : MAN

: 07.07.92 Edition replaces : 18.02.91 Calibrating oil : ISO-4113

Injection pump : VE4/10F1350R418 Type number : 0 460 404 069

Customer-specific information

Customer : MAN

Engine : D 0824 GF01

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 109

Openina .

Pressure bar: 207.00...210.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 73.10...74.10

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 1370

Del. quantity cm3/

1000s.: 57.00...63.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Det. quantity\_cm3/: 40.00...80.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 2nd speed

mm: 6.60...7.40 TD travel

mm: (6.30...7.70)

Shutoff

electromagnet Volt: 24 1/min: 1000 3rd speed

TD travel mm: 3.40...3.80

mm: (2.90...4.30)

Shutoff

electromagnet Volt: 24 1/min: 800 4th speed

mm: 1.10...1.90 TD travel

mm: (0.80...2.20)

Shutoff electromagnet Volt: 24	Del. quantity cm3/: 73.1076.10 1000s.: (71.6077.60)
Supply-pump pressure characteristic:	7th speed 1/min: 1000 Shutoff
1st speed 1/min: 600 Supply-pump	electromagnet Volt: 24  Del. quantity cm3/: 73.1074.10  1000S.: (71.1076.10)
pressure bar: 3.103.70	8th speed 1/min: 800
electromagnet Volt: 24 2nd speed 1/min: 1000	electromagnet Volt: 24 Del. quantity cm3/: 72.2076.20
Supply-pump pressure bar: 5.205.80	1000s.: (70.7077.70) 9th speed 1/min: 600
Shutoff electromagnet Volt: 24 3rd speed 1/min: 1300	Shutoff electromagnet Volt: 24 Del. quantity cm3/: 62.8068.80
Supply-pump pressure bar: 6.907.50	10005: (61.8069.80)
Shutoff electromagnet Volt: 24	Mech. shutoff: Mech. Abstellung:
Overlow quantity at overflow valve:	1st speed
1st speed 1/min: 600 Shutoff	1000S.: (0.003.00) Shutoff
electromagnet Volt: 24 Overflow : 41.7083.30	electromagnet volt: 24
quantity cm3/10s: (41.7083.30) 2nd speed 1/min: 1300	Electr. shutoff:
Shutoff electromagnet Volt: 24 Overflow : 55.60139.00	1st speed
quantity cm3/10s: (55.60139.00)	Idle delivery:
Delivery-quant. and breakaway char.:	1st speed 1/min: 360
2nd speed 1/min: 1550	Shutoff electromagnet Volt: 24 Del. quantity cm3/: 7.0013.00
electromagnet Volt: 24 Del. quantity cm3/: 0.003.00	1000S:: (5.0015.00) Dispersion cm3/: 6.0
1000s.: (0.003.00) + 3rd speed 1/min: 1480 +	1000s.: (6.5) 2nd speed 1/min: 450
Shutoff electromagnet Volt: 24	Shutoff electromagnet Volt: 24
Del. quantity cm3/: 0.0015.00 + 1000s.: (0.0015.00) + 4th speed 1/min: 1430	Del. quantity cm3/: 0.003.00
4111 Street 170010 4.00	1000s.: (0.003.00)
Shutoff	1000s.: (0.003.00)  Automatic starting fuel delivery:
	Automatic starting fuel delivery:  1st speed 1/min: 350
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000S.: (15.0045.00) 5th speed 1/min: 1370 Shutoff	Automatic starting fuel delivery:  1st speed  1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00115.00
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000S.: (15.0045.00) 5th speed 1/min: 1370 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 57.0063.00	Automatic starting fuel delivery:  1st speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00115.00 1000s.: (65.00115.00)
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000S.: (15.0045.00) 5th speed 1/min: 1370 Shutoff electromagnet Volt: 24	Automatic starting fuel delivery:  1st speed  1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00115.00

Del. quantity cm3/: 40.00...70.00 10008:: (40.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 40.00...80.00
10008: (40.00...80.00)

#### Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

# Mounting and assembly dimensions:

Designation

K KF mm: -

mm: 5.6...6.0 mm: 1.0...1.4 mm: 5.3 MS

SVS max.

Remarks:

Note inst. in remarks column

Test scheet : SOF

Edition : 02.07.92 replaces : 10.05.89 Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R342 : 0 460 414 067 Type number

Customer Part-No. :

Customer-specific information Customer : SOFIM

: 8140.07.2700 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1100 Speed

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Sneed

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 525

Del. quantity cm3/

1000s.: 27.00...28.00

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 54.00...55.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2300

Del. quantity cm3/

1000s.: 18.00...22.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...80.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1100 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 16.50...24.50#

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement - correttore anticipo iniezione (SV) -	+ Overflow : 69.50111.20 + quantity cm3/10s: (69.50111.20)
1.Speed 1/min: 1100 - TD-travel -	2nd speed 1/min: 2000
difference mm: 0.400.60#	+ electromagnet Volt: 12
Shutoff	Overflow : 83.40180.70
electromagnet Volt: 12	quantity cm3/10s: (83.40180.70)
prompa di mandata (FP)  1. Speed 1/min: 1100	Delivery-quant. and breakaway char.:
Supply pump	-
pressure	2nd speed 1/min: 2450
difference bar: 0.100.30*	Shutoff
Shutoff - electromagnet Volt: 12 -	electromagnet Volt: 12
etectromagnet vott: 12	Del. quantity cm3/: 0.005.00 1000s.: (0.005.00)
Inspection pump test specifications	5th speed 1/min: 2300
Test specifications in parentheses	- Shutoff
•	electromagnet Volt: 12
Timing-device characteristic:	Del. quantity cm3/: 18.0022.00
0 1 1 4/1 4700	1000\$.: (15.5024.50)
2nd speed 1/min: 1500 -	8th speed 1/min: 2200
TD travel mm: 4.104.90 - mm: (3.905.10)	- Shutoff
Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 32.0040.00
electromagnet Volt: 12	10005.: (30.0042.00)
3rd speed 1/min: 1100	9th speed 1/min: 2000
TD travel mm: 3.103.50	Shutoff
mm: (2.703.90)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 48.0053.00 D
electromagnet Volt: 12	1000s.: (47.0054.00) b
4th speed	10th speed 1/min: 1500
mn: (0.401.60)	Shutoff electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 53.2058.20
electromagnet Volt: 12	1000s.: (52.2059.20)
	- 12th speed 1/min: 525
Supply-pump pressure characteristic:	Shutoff
1-t	electromagnet Volt: 12
1st speed 1/min: 600 Supply-pump	Del. quyntity cm3/: 27.0028.00 F
pressure bar: 4.104.70	1000s.: (24.0031.00) F 18th speed 1/min: 1100
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1100	Del. quantity cm3/: 54.0055.00 E
Supply-pump	1000s.: (51.0058.00) E
pressure bar: 5.706.30 - Shutoff	
electromagnet Volt: 12	Mech. shutoff:
3rd speed 1/min: 1500	F Electr. shutoff:
Supply-pump -	Eccott. Shatoff.
pressure bar: 6.907.50	1st speed 1/min: 350
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
Overlow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 525 Shutoff	1st speed 1/min: 350 Shutoff
electromagnet Volt: 12	electromagnet Volt: 12

Del. quantity cm3/: 10.50...14.50 1000s.: (8.50...16.50) 1/min: 350 1st speed cm3/: 3.0 1000s.: (3.5) 1/min: 600 Dispersion Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...60.00 2nd speed Shutoff 1000s.: (40.00...60.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.00 1/min: 450 2nd speed 1000s.: (0.00...2.00) Shutoff 1/min: 400 3rd speed electromagnet Volt: 12 Shutoff Del. quantity cm3/: 10.00...40.00 1000s.: (10.00...40.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) 5th speed 1/min: 300 Del. quantity cm3/: 26.00...36.00 1000s.: (25.00...37.00) 1/min: 100 4th speed Snutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: Shutoff electromagnet: 1/min: 1100 1st speed Cut-in Inj.—qty. cm3/ : 13.30..15.30\* min voltage : 10.0 difference 1000s.: (13.30...15.30) Rated voltage : 12.0 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Inj. qty. cm3/: 16.50..24.50# Mounting and assembly dimensions: Designation difference 1000s.: (16.50...24.50) K mm: -Shutoff KF mm: K-OT electromagnet Volt: 12 MS mm: 0.8...1.2 5th speed 1/min: 1100 mm: 3.5 SVS max. cm3/: 2.00...8.00' mm: 7.2 Inj.—qty. HBA stroke mm: 36.9...40.9 difference 1000s.: (2.00...8.00) Ya Shutoff Yb mm: 38.8...44.2 electromagnet Volt: 12 Remarks: TD-travel dif.measurement: : correttore anticipo iniezione (SV): 1st speed 1/min: 1100 TD-travel : 0.40...0.60# difference mm: (0.40...0.60) Shutoff electromagnet Volt: 12 electromagnet vott. ... 3rd speed 1/min: 1100 TD-travel : 0.00...0.80' difference mm: (0.00...0.80) Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1100 Supply pumppressure : 0.10...0.30\* difference bar: (0.10...0.30) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery:

Note inst. in remarks column

Test scheet

: 03.07.92 Edition replaces : 24.10.89 Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R350 Type number : 0 460 414 070

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.27.2780

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Charge press hPa: 1000 Setting value bar: 5.60...6.20

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 55.00...56.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 16.50...17.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 2100 hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 19.50...25.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...80.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1300 Speed Charge press hPa: 1000

Inj.-qty. cm3/

difference 1000s.: 22.00...30.00'

Shutoff +	· Supply-pump
electromagnet Volt: 12	pressure bar: 7.608.20
TD-travel dif.measurement +	Shutoff
correttore anticipo iniezione (SV)	electromagnet Volt: 12
1. Speed 1/min: 1300	•
Charge press hPa: 1000	Overlow quantity at overflow valve:
difference mm: 1.902.10'	1st speed 1/min: 500
Shutoff	Shuroff
electromagnet Volt: 12	electromagnet Volt: 12
SP pressdif.measurement	Overflow : 41.7083.40
pompa di mandata (FP)	quantity cm3/10s: (41.7083.40)
1. Speed 1/min: 1300	2nd speed 1/min: 1900
Charge press hPa: 1000	Charge press. hPa: 1000
Supply pump	Shutoff
pressure	electromagnet Volt: 12
difference bar: 0.100.30*	Overflow : 55.60139.00
Shutoff	quantity cm3/10s: (55.60139.00)
electromagnet Volt: 12	qualitity (1107 105, (33,00,(37,00)
I	. Dolivery-guant and breakages chan
Inspection-pump test specifications	Delivery-quant, and breakaway char.:
Test specifications in parentheses	•
rest specifications in parentneses	1nd speed 1/min: 800
Timing-device characteristic:	
Timing device characteristic.	Charge-air pressure-setting
2nd speed 1/min: 1900	point hPa: 400
	LDA-stroke mm: 6.5
	Shutoff
TD travel mm: 7.107.90	electromagnet Volt: 12
mm: (6.808.20)	Del. quantity cm3/: 42.5043.50
Shutoff + 12	1000s.: (39.0047.00)
electromagnet Volt: 12	2nd speed 1/min: 2350
3rd speed 1/min: 1100 +	Charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 2.202.60	electromagnet Volt: 12
mm: (1.703.10)	Del. quantity cm3/: 0.005.00
Shutoff	1000\$.: (0.005.00)
electromagnet Volt: 12	5th speed 1/min: 2100
4th speed 1/min: 900	Charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 0.601.40	electromagnet Volt: 12
mm: (0.301.70)	Del. quantity cm3/: 19.5025.50
Shutoff	10005.: (18.0027.00)
electromagnet Volt: 12	8th speed 1/min: 2000
<u> </u>	Charge press. hPa: 1000
Supply-pump pressure characteristic: +	Shutoff
+	electromagnet Volt: 12
1st speed 1/min: 500 +	Del. quantity cm3/: 40.0048.00
Charge press. hPa: 1000	1000s.: (38.0050.00)
Supply-pump +	9th speed 1/min: 1900
pressure bar: 3.604.20 +	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1100 +	Del. quantity cm3/: 51.0056.00
Charge press. hPa: 1000	1000s.: (50.0057.00)
Supply-pump +	12th speed  1/min: 1750
pressure bar: 5.606.20	Charge press. hPa: 1000
Shutoff +	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 1900 +	Del. quyntity cm3/: 55.0056.00
Charge press. hPa: 1000	10008.: (52.0059.00)

15th speed 1/min: Charge press. hPa: Shutofi	1000	†	Charge press. hPa: 1000 Injqty. cm3/: 22.0030.00' difference 1000S.: (22.0030.09)
electromagnet Volt:	12	+	Shutoff
Del. quantity cm3/:	52.5057.50	†	electromagnet Volt: 12
	(51.0059.00)	†	5th speed 1/min: 1300
17th speed 1/min:		†	Charge press. hPa: 1000
Charge press. hPa: Shutoff	1000	†	Injaty. cm3/: 2.008.00#
	42	†	difference 1000s.: (2.008.00)
electromagnet volt:		†	Shutoff
Del. quantity cm3/:	(48.0056.00)	T	electromagnet Volt: 12
18th speed 1/min:		T	2nd speed 1/min: 1300 Charge press. hPa: 1800
Shutoff	300	I	TD-travel : 1.902.10'
electromagnet Volt:	12	1	difference mm: (1.90,2.10)
Del. quantity cm3/:		1	Shutoff
	(13.5020.50)	1	electromagnet Volt: 12
20th speed 1/min:		1	4th speed 1/min: 1300
Charge press. hPa:		1	Charge press. hPa: 1000
Shutoff		+	TD-travel : 2.002.80#
electromagnet Volt:	12	+	difference mm: (2.002.80)
Del. quantity cm3/:	47.0056.00	+	2nd speed 1/min: 1300
1000s.:	(46.0057.00)	+	Charge press. hPa: 1000
		+	Snibbly bruub-
Mech. shutoff:		+	pressure : 0.100.30*
ml		+	difference bar: (0.100.30)
Electr. shutoff:		+	Shutoff
1-4 1 1/	725	+	electromagnet Volt: 12
1st speed 1/min: Del. quantity cm3/:		†	Cont look dol of Tod tot or
1000e	(0.003.00)	†	Part-load del.at 3rd injqty.
1003.1	(0.005.00)	Ī	terza fermo della portata stop (EGR set)
Idle delivery:		Ι	scarico) (ARF)
2200 401.101/1		I	gaz d'échappement-ARF)
1st speed 1/min:	325	1	Spacing mm: 12.0
Shutoff		+	
electromagnet Volt:	12	+	1st speed 1/min: 1000
Del. quantity cm3/:		+	Charge press. hPa: 1000
1000s.:	(8.0016.00)	+	Shutoff
Dispersion cm3/:		+	electromagnet Volt: 12
1000s.:		+	Del. quantity cm3/: 6.107.10
2nd speed 1/min:	450	+	1000s.: (3.1010.10)
Shutoff	12	†	A. hamak
electromagnet Volt: Del. quantity cm3/:		†	Automatic starting fuel delivery:
	(0.005.00)	I	1st speed 1/min: 300
5th speed 1/min:		Ι	Shutoff
Del. quantity cm3/:		I	electromagnet Volt: 12
	(32.0044.00)	1	Del. quantity cm3/: 50.0080.00
	(UE: UD: 1: 1-1; UD)	1	1000s.: (50.0080.00)
Load-dependent start	t of delivery:	1	.00001. (5010011.001.001
Injqty.dif.measure		+	2nd speed 1/min: 400
		+	Shutoff
2nd speed 1/min:		+	electromagnet Volt: 12
Charge press. hPa:		+	Del. quantity cm3/: 20.0050.00
	18.0020.00*	+	10005.: (20.0050.00)
difference 1000s.:	(18.0020.00)	†	
Shutoff	12	†	4th speed 1/min: 100
electromagnet Volt:		†	Shutoff
4th speed 1/min:	1300	+	electromagnet Volt: 12

Del. quantity cm3/: 40.00...80.00 1000S.: (40.00...80.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

#### Designation

K KF mm: 3.2...3.4 mm: K-OT MS mm: 0.6...1.0 SVS max. mm: 0.8 mm: 32.0...36.0 mm: 42.9...47.1 Ya Yb

#### Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : SOF Edition : 03.07.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R393 Type number : 0 460 414 078

Customer Part-No. :

Customer-specific information Customer : SOFIM

: 8140.47.2700 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000 Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1800 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 550

Del. quantity cm3/

1000s.: 24.50...25.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 2100 Speed Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 40.00...46.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...70.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.~qty.dif.measurement:

Speed 1/min: 1100 Charge press hPa: 1000

Inj.-qty. cm3/

difference 1000s.: 25.50...33.50#

Shutoff	+	Supply-pump	
electromagnet Volt: 12	+		6.807.40
TD-travel dif.measurement	+	Shutoff	
correttore anticipo iniezione (SV)	+	electromagnet Volt:	12
1. Speed 1/min: 1100	+	-	
Charge press hPa: 1000 TD-travel	<u>†</u>	Overlow quantity at	overflow valve:
difference mm: 0.700.90#	T	1st speed 1/min:	EEO
Shutoff	T		טככ
	†	Shutoff	40
electromagnet Volt: 12	†	electromagnet Volt:	
SP press.—dif.measurement	+	Overflow :	75.00119.50
pompa di mandata (FP)	+	quantity cm3/10s:	
1. Speed 1/min: 1100	+	2nd speed 1/min:	
Charge press hPa: 1000	+	Charge press. hPa:	1000
Supply pump	+	Shutoff	
pressure	+	electromagnet Volt:	12
difference bar: 0.100.30*	+	Overflow :	
Shutoff	1	quantity cm3/10s:	
electromagnet Volt: 12	$\perp$	quarterey ellips 103.	(71.50100.107
CCCCI GINGI CE VOCE, IL	Ι	Dalivany-ought and	handles also about
Inspection-pump test specifications	T	Delivery-quant. and	breakaway char.
	T		
Test specifications in parentheses	†		
	+	1nd speed 1/min:	
Timing-device characteristic:	+	Charge-air pressure-	-setting
	+	point hPa:	
3rd speed 1/min: 1100	+	LDA-stroke mm:	6.0
Charge press hPa: 1000	+	Shutoff	
TD travel mm: 1.401.80	+	electromagnet Volt:	12
mm: (0.902.30)	1	Del. quantity cm3/:	/ O OO 50 OO
Shutoff	1		(45.5053.50)
electromagnet Volt: 12	T		
5th speed 1/min: 1900	T	2nd speed 1/min:	
	1	Charge press. hPa:	1000
Charge press. hPa: 1000	+	Shutoff	40
TD travel mm: 5.406.20	+	electromagnet Volt:	
mm: (5.4U6.2U)	+	Del. quantity cm3/:	
Snutoff	+		(0.005.00)
electromagnet Volt: 12	+	3rd speed 1/min:	2200
6th speed 1/min: 1500	+	Charge press. hPa:	1000
Charge press. hPa: 1000	+	Shutoff	
TD travel mm: 3.204.00	+	electromagnet Volt:	12
nm: (2.904.30)	1	Del. quantity cm3/:	19.0027.00
Shutoff	1		(17.0029.00)
electromagnet Volt: 12	1	5th speed 1/min:	
	1	Charge press. hPa:	
Supply-pump pressure characteristic:	I	Shutoff	1000
coppey pains pressure character istic.	T		13
2nd speed 1/min. 1100	Ť	electromagnet Volt:	
2nd speed 1/min: 1100	T	Del. quantity cm3/:	
Charge press. hPa: 1000	†		(38.5047.50)
Supply-pump	+	9th speed 1/min:	
pressure bar: 5.606.20	+	Charge press. hPa:	1000
Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	12
3rd speed 1/min: 1900	+	Del. quantity cm3/:	
Charge press. hPa: 1000	+		(57.0064.00)
Supply-pump	+	12th speed 1/min:	
pressure bar: 8.008.60	1	Charge press. hPa:	
Shutoff	1	Shutoff	,500
electromagnet Volt: 12	$\perp$	electromagnet Volt:	12
4th speed 1/min: 1500	I		
	T	Del. quyntity cm3/:	(67 50 (7 50)
Charge press. hPa: 1000	T	{UUUS.:	(57.5064.50)

15th speed 1/min: 1400 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 56.0061.00	+ Shutoff + electromagnet Volt: 12 + 5th speed 1/min: 1100 - Charge press. hPa: 1000 + Injqty. cm3/: 2.008.00'
1000s.: (54.5062.50) 17th speed 1/min: 1100 Charge press. hPa: 1000 Shutoff	difference 1000s.: (2.008.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1100
electromagnet volt: 12 Del. quantity cm3/: 55.0060.00 1000H.: (53.5061.50) 18th speed 1/min: 550	Charge press. hPa: 1000 TD-travel: 0.700.90# difference: mm: (0.700.90) Shutoff
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 24.5025.50 1000s.: (21.5028.50) 20th speed 1/min: 550	electromagnet Volt: 12 4th speed 1/min: 1100 Charge press. hPa: 1000 TD-travel : 0.401.20' difference mm: (0.401.20)
Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 56.5065.50	2nd speed 1/min: 1100 Charge press. hPa: 1000 Supply pump- pressure : 0.100.30*
1000s.: (55.5066.50)  Mech. shutoff:	difference bar: (0.100.30) Shutoff electromagnet Volt: 12
Electr. shutoff:	Automatic starting fuel delivery:
1st speed	1st speed 1/min: 300 Shutoff electromagnet Volt: 12
Idle delivery:	Del. quantity cm3/: 40.0080.00 1000s.: (40.0080.00)
1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00 1000s.: (9.0017.00)	2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 18.0048.00 1000S.: (18.0048.00)
Dispersion cm3/: 6.0 1000S.: (6.5) 2nd speed 1/min: 450 Shutoff	+ 4th speed 1/min: 100 - Shutoff - electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 0.005.00 10008.: (0.005.00)	Del. quantity cm3/: 40.0070.00 1000s.: (40.0070.00) Shutoff electromagnet:
Load-dependent start of delivery: Injqty.dif.measurement:	
2nd speed 1/min: 1100 Charge press. hPa: 1000 Injqty. cm3/: 21.7023.70* difference 1000s.: (21.7023.70) Shutoff	min voltage : 10.0 Rated voltage : 12.0  Mounting and assembly dimensions:  Designation
electromagnet Volt: 12 4th speed   1/min: 1100 Charge press. hPa: 1000 Inj.—qty.   cm3/: 25.5033.50# difference 1000S.: (25.5033.50)	K

 XK
 mm: 20.0...22.0

 XL
 mm: 13.1...16.5

 Ya
 mm: 36.9...40.9

 Yb
 mm: 42.5...47.9

#### Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

See . . . . .

Overflow restriction 0.75 mm - Part No. ..343,...344

Note inst. in remarks column

Test scheet : VMA

Edition : 08.07.92 replaces : 10.07.89

Calibrating oil : ISO-4113

: VE6/11F1800L363 Injection pump Type number : 0 460 416 064

Customer Part-No. :

Customer—specific information

Customer

: HR694HJ/10 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values

Test specifications in parentheses

Timing device travel

Speed 1/min: 1500

Charge press. hPa: 1000 Setting value mm: 3.80...4.20

Supply-pump pressure

1/min: 1500 Speed

hPa: 1000 Charge press

Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500

Charge press. hPa: 1000

Charge press. 17.4.

Del. quantity cm3/
1000s.: 84.50...85.50

Dispersion cm3/: 3.5

1000s.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 49.00...50.00

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 11.00...15.00 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

1/min: 2000 Speed

Charge press hPa: 1000 Del. quantity cm3/

1000s.: 52.00...58.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 55.00...95.00 mind 1000s.: 55.00

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: 20.00...28.00\*

TD-travel dif.measurement

correttore anticipo injezione (SV)

1/min: 1500 1. Speed

TD-travel

difference mm: 0.60...0.80\*

SP press.-dif.measurement pompa di mandata (FP)

1/min: 1500 1. Speed

Supply pump pressure

bar: 0.20...0.40# difference

Inspection pump test specifications Test specifications in parentheses

F19

Timing-device characteristic:	Del. quantity cm3/: 79.0082.00 1000s.: (78.0083.00)
2nd speed 1/min: 1800 - Charge press hPa: 1000 - TD travel mm: 4.905.70 -	- 12th speed 1/min: 1500 - Charge press. hPa: 1000 Del. quyntity cm3/: 84.5085.50
mm: (4.606.00)  3rd speed	- 1000s.: (83.0087.00) - 18th speed 1/min: 600 - Del. quantity cm3/: 49.0056.00
TO travel mm: 3.804.20 - mm: (3.304.70) - 4th speed 1/min: 1000 -	1000s.: (47.0052.00) - 20th speed
Charge press hPa: 1000 - TD travel mm: 1.402.20 - mm: (1.102.50)	- Del. quantity cm3/: 86.0090.00 - 1000s.: -
Supply-pump pressure characteristic:	Mech. shutoff: Mech. Abstellung:
1st speed 1/min: 1800 Charge press. hPa: 1000 Supply-pump	- 1st speed 1/min: 1800 - Charge press. hPa: 1000 - Del. quantity cm3/: 0.003.00
pressure bar: 7.107.70  2nd speed 1/min: 1500 Charge press. hPa: 1000	1000\$.: (0.003.00) 
Supply-pump - pressure bar: 6.106.70 -	- 1st speed 1/min: 400
3rd speed 1/min: 600 - Charge press. hPa: 1000 - Supply-pump -	- Del. quantity cm3/: 0.003.00 - 1000s.: (0.003.00) - Shutoff
pressure bar: 3.003.60	- electromagnet volt: 12
Overlow quantity at overflow valve:	- Idle delivery:
1st speed 1/min: 600	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Charge press. hPa: 1000 Overflow: 41.7083.40	- 1st speed 1/min: 400 - Del. quantity cm3/: 11.0015.00 - 1000s.: (9.0017.00)
Charge press. hPa: 1000 Overflow: 41.7083.40 quantity: cm3/10s: (41.7083.40) 2nd speed: 1/min: 1800	Del. quantity cm3/: 11.0015.00 - 1000S.: (9.0017.00) - Dispersion cm3/: 3.5 - 1000S.: (3.5)
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40)	Det. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 600 Det. quantity cm3/: 0.003.00 1000s.: (0.003.00)
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00	Del. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 600 Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char:  1nd speed 1/min: 600 Charge-air pressure-setting	Det. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 600 Det. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 450 Det. quantity cm3/: 5.5010.50
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 5.2 Del. quantity cm3/: 69.0070.00	Del. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 600 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 450 Del. quantity cm3/: 5.5010.50 1000s.: (3.5012.50) Load-dependent start of delivery: Injqty.dif.measurement: 1st speed 1/min: 1500 Injqty. cm3/: 17.0019.00#
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 5.2 Del. quantity cm3/: 69.0070.00 1000s.: (67.0072.00) 3rd speed 1/min: 2130	Del. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5) Cnd speed 1/min: 600 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Trd speed 1/min: 450 Del. quantity cm3/: 5.5010.50 Del. quantity cm3/: 5.5012.50) Load-dependent start of delivery: Injqty.dif.measurement:  1st speed 1/min: 1500 Injqty. cm3/ : 17.0019.00# difference 1000s.: (17.0019.00) Trd speed 1/min: 1500
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)  Delivery-quant. and breakaway char.:  1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 5.2 Del. quantity cm3/: 69.0070.00 1000S.: (67.0072.00) 3rd speed 1/min: 2130 Charge press. hPa: 1000 Del. quantity cm3/: 0.008.00	Det. quantity cm3/: 11.0015.00 1000s.: (9.0017.00) Dispersion cm3/: 3.5 1000s.: (3.5)  2nd speed 1/min: 600 Det. quantity cm3/: 0.003.00 1000s.: (0.003.00)  3rd speed 1/min: 450 Det. quantity cm3/: 5.5010.50 1000s.: (3.5012.50)  Load-dependent start of delivery: Injqty.dif.measurement:  1st speed 1/min: 1500 Injqty. cm3/ : 17.0019.00# difference 1000s.: (17.0019.00) 3rd speed 1/min: 1500 Injqty. cm3/: 20.0028.00* difference 1000s.: (20.0028.00)
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 5.2 Del. quantity cm3/: 69.0070.00 1000s.: (67.0072.00) 3rd speed 1/min: 2130 Charge press. hPa: 1000 Del. quantity cm3/: 0.008.00 1000s.: - 5th speed 1/min: 2000 Charge press. hPa: 1000	Det. quantity cm3/: 11.0015.00 1000S.: (9.0017.00) Dispersion cm3/: 3.5 1000S.: (3.5)  2nd speed 1/min: 600 Det. quantity cm3/: 0.003.00 1000S.: (0.003.00)  3rd speed 1/min: 450 Det. quantity cm3/: 5.5010.50 1000S.: (3.5012.50)  Load-dependent start of delivery: Injqty.dif.measurement:  1st speed 1/min: 1500 Injqty. cm3/: 17.0019.00# difference 1000S.: (17.0019.00) 3rd speed 1/min: 1500 Injqty. cm3/: 20.0028.00* difference 1000S.: (20.0028.00)  TD-travet dif.measurement: correttore anticipo iniezione (SV):
Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)  Delivery-quant. and breakaway char.:  1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 5.2 Del. quantity cm3/: 69.0070.00 1000s.: (67.0072.00) 3rd speed 1/min: 2130 Charge press. hPa: 1000 Del. quantity cm3/: 0.008.00 1000s.: - 5th speed 1/min: 2000	Det. quantity cm3/: 11.0015.00 1000S: (9.0017.00) Dispersion cm3/: 3.5 1000S: (3.5)  2nd speed 1/min: 600 Det. quantity cm3/: 0.003.00 1000S: (0.003.00)  3rd speed 1/min: 450 Det. quantity cm3/: 5.5010.50 1000S: (3.5012.50)  Load-dependent start of delivery: Injqty.dif.measurement:  1st speed 1/min: 1500 Injqty. cm3/: 17.0019.00# difference 1000S: (17.0019.00) 3rd speed 1/min: 1500 Injqty. cm3/: 20.0028.00* difference 1000S: (20.0028.00)

SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500

Supply pump-

pressure : 0.20...0.40# bar: (0.20...0.40) difference

# Automatic starting fuel delivery:

1st speed 1/min: 300 Del. quantity cm3/: 57.00...77.00 1000s.: (57.00...77.00)

2nd speed 1/min: 400

Del. quantity cm3/: 45.00...55.00

1000s.: (45.00...55.00)

4th speed 1/min: 100

Del. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00)

### Mounting and assembly dimensions:

#### Designation

mm: -KF mm: 5.6...6.0 MS mm: 0.8...1.2 XK mm: 20.0...22.0 XL nm: 9.7...13.1 mm: 38.6...40.6 Ya Yb mm: 50.4...62.2

Remarks:

Operate control lever after each manifold pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

Pushing electromagnet.

Note inst. in remarks column

Test scheet : FIA : 02.06.92 Edition : 18.01.39 replaces Calibrating oil : ISO-4113

: VE4/12F1350R330 Injection pump Type number : 0 460 424 050

Customer Part-No. :

Customer-specific information Customer : IVECO-FLAT

: 8040.45.261 LKW,USA Engine

KW: 75 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temo.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening |

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1200 Charge press. hPa: 1000

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200

Charge press hPa: 1000 Setting value bar: 6.40...7.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 109.50...110.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

**1000**s.: **66**.50...67.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 35.00...41.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...115.00 mind 1000s.: 75.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200	- Shutoff	;	
Charge press hPa: 1000	- electro	magnet Voit:	12
Injqty. cm3/	4th spe		
difference 1000s.: 10.0018.00*		press. hPa:	
Shutoff	- Supply-		
electromagnet Volt: 12	pressur		7.007.60
TD-travel dif.measurement	- Shutoff		
correttore anticipo iniezione (SV)	electro	magnet Volt:	12
1. Speed 1/min: 1200	-	•	
Charge press hPa: 1000	- Overlow	quantity at	overflow valve:
TD-travel	-		
difference mm: 1.401.60*	- 1st spe	ed 1/min:	500
Shutoff	- Charge	press. hPa:	1000
electromagnet Volt: 12	<ul> <li>Shutoff</li> </ul>		
SP pressdif.measurement	- electro	magnet Volt:	12
pompa di mandata (FP)	- Overflo	w :	41.7083.40 (41.7083.40)
1.Speed 1/min: 1200	- quantit	y cm3/10s:	(41.7083.40)
Charge press hPa: 1000	- 2nd spe	ed 1/min:	1320
Supply pump		press. hPa:	
pressure	Shutoff		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
difference bar: 0.000.40'	- electro	magnet Volt:	12
Shutoff	- Overflo		55.60139.00
electromagnet Volt: 12			(55.60139.00)
	- quartere	<i>y</i> 01107 103:	(33.00(37.00)
Inspection-pump test specifications	- Deliver	v-quant and	breakaway char.:
Test specifications in parentheses	-	) quarter and	breakanay char
	_		
Timing-device characteristic:	Ind sne	ed 1/min:	500
The second secon		air pressure	
2nd speed 1/min: 1350	- point		
Charge press hPa: 1000			6.3
TD travel mm: 3.704.50	- Shutoff		0.5
mm: (3.404.80)		magnet Volt:	12
Shutoff			86.0037.00
electromagnet Volt: 12	bet. qu	10000	(83.0090.00)
3rd speed 1/min: 1200	7nd one	ed 1/min:	4400
Charge press hPa: 1900			
TD travel mm: 2.803.20		press. hPa:	1000
mm: (2.303.70)	- Shutoff		42
Shutoff		magnet Volt:	
	- pet qu	antity cm3/:	
electromagnet Volt: 12 4th speed   1/min: 1050	- 		(0.003.00)
	- 5th spe		
Charge press hPa: 1000		press. hPa:	1000
TD travel mm: 1.302.10	- Shutoff		40
mm: (1.002.40)		magnet Volt:	
Shutoff	- Det. qu	antity cm3/:	35.0041.00
electromagnet Volt: 12	-		(32.0044.00)
<b>O</b>	- 9th spe		
Supply-pump pressure characteristic:		press. hPa:	1000
4	<ul> <li>Shutoff</li> </ul>		
1st speed 1/min: 500		magnet Volt:	
Charge press. hPa: 1000	- Del. qu	antity cm3/:	105.50109.50
Supply-pump	-		(104.50110.50)
pressure bar: 3.604.20	- 12th sp	eed 1/min:	1200
Shutoff	- Charge	press. hPa:	1000
electromagnet Volt: 12	<ul> <li>Shutoff</li> </ul>		
3rd speed 1/min: 1200	<ul> <li>electro</li> </ul>	magnet Volt:	12
Charge press. hPa: 1000	- Del. qu	yntity cm3/:	109.50110.50
Supply-pump		40000	(407 00 447 00)
pressure bar: 6.407.00	-	10005.:	(107.00113.00)

Shutoff Supply pumpelectromagnet Volt: 12 pressure : 0.00...0.40 Del. quantity cm3/: 66.50...67.50 difference bar: -1000s.: (64.00...70.00) Shutoff electromagnet Volt: 12 Mech. shutoff: Mech. Abstellung: Automatic starting fuel delivery: 1/min: 1350 1st speed 1/min: 150 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Del. quantity cm3/: 80.00...120.00 Shutoff 1000s.: (80.00...120.00) electromagnet volt: 12 2nd speed 1/min: 250 Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.50...37.50 1000s.: (22.50...37.50) 1st speed 1/min: 400 tel. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 4th speed 1/min: 100 Idle delivery: Shutoff electromagnet Volt: 12 1st speed 1/min: 400 Del. quantity cm3/: 75.00...115.00 Shutoff 1000s.: (75.00...115.00) electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 Shutoff electromagnet: 1000s.: (19.00...29.00) cm3/: 3.5Dispersion Cut-in 1000s.: (4.0) min voltage : 10.0 1/min: 450 2nd speed Rated voltage : 12.0 Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Designation K mm: -KF Load-dependent start of delivery: mm: 5.3...5.7 Inj.-qty.dif.measurement: MS mm: 0.8...1.0 LDA stroke mm: 6.3 2nd speed 1/min: 1200 XK mm: 20.0...22.0 mm: 15.0...18.4 mm: 37.9...39.9 mm: 45.0...50.2 Charge press. hPa: 1000 XL cm3/: 5.00...7.00' Inj.-qty. Ya difference 1000s.: -Yb Shutoff electromagnet Volt: 12
4th speed 1/min: 1200
Charge press. hPa: 1000
Inj. qty. cm3/: 10.00..18.00\* Remarks: difference 1000s.: (10.00...18.00) Shutoff electromagnet Volt: 12 1/min: 1200 2nd speed Charge press. hPa: 1000 TD-travel : 1.40...1.60\* difference mm: (1.40...1.60) Shutoff electromagnet Volt: 12 1/min: 1200 2nd speed Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CAS : 08.07.92 Edition replaces : 09.10.91

Calibrating oil : ISO-4113

: VE4/12F1100R370 Injection pump Type number : 0 460 424 056

Customer Part-No. :

Customer-specific information

: CASE Customer

Engine : 4 TA 390

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed

Setting value mm: 3.20...3.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750

Setting value bar: 4.30...4.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750

Del. quantity cm3/

1000s.: 86.50...87.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 10.00...16.00

Shutaff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1155 Speed

Del. quantity cm3/

1000s.: 50.00...58.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 65.00...125.00

1000s.: 65.00 mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 4.80...5.60 TD travel

mm: (4.50...5.90)

Shutoff +	Del. quantity cm3/: 50.0058.00
electromagnet Volt: 12	10008.: (46.0062.00)
3rd speed 1/min: 750 +	9th speed
TD travel mm: 3.203.60	Shutoff
mn: (2.704.10)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 69.5072.50
electromagnet Volt: 12	10008.: (68.0074.00)
4th speed 1/min: 500	10th speed 1/min: 900
TD travel mm: 1.602.40 +	Shutoff
mm: (1,302.70)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 76.5079.50
electromagnet Volt: 12	10008.: (74.5081.50)
Simply many management about the state of	12th speed 1/min: 750
Supply-pump pressure characteristic:	Shutoff
1st speed 1/min: 500	electromagnet Volt: 12
Supply—pump +	Del. quyntity cm3/: 86.5087.50
pressure bar: 3.203.80	1000S.: (84.0090.00)
Shutoff	20th speed 1/min: 500 Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 750	Del. quantity cm3/: 86.5094.50
Supply-pump I	1900s.: (84.5096.50)
pressure bar: 4.304.90	18005 (84.3090.30)
Shucoff	Mech. shutoff:
electromagnet Volt: 12	ricult. Shacotts
3rd speed 1/min: 1100	Electr. shutoff:
Supply-pump +	
pressure bar: 5.806.40	1st speed 1/min: 450
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
The state of the s	
The state of the s	10003 (0.003.00)
Overlow quantity at overflow valve:	Idle delivery:
Overlow quantity at overflow valve:	Idle delivery:
Overlow quantity at overflow valve:  1st speed 1/min: 500	Idle delivery: 1st speed 1/min: 450
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff	Idle delivery: 1st speed 1/min: 450 Shutoff
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed   1/min: 450 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40	Idle delivery:  1st speed   1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40)	Idle delivery:  1st speed  1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100	Idle delivery:  1st speed  1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff	Idle delivery:  1st speed  1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000S.: (0.004.00)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00) Automatic starting fuel delivery:
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery: 1st speed 1/min: 250
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000s.: (10.0060.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000S.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000S.: (85.00135.00)  2nd speed 1/min: 450
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)  Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000s.: (10.0060.00) 5th speed 1/min: 1155	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000s.: (10.0060.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000s.: (85.00135.00)  2nd speed 1/min: 450 Shutoff electromagnet Volt: 12

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00)

#### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2 SVS max. mm: 1.1

XK mm: 18.8...20.8 mm: 11.0...14.4 mm: 34.8...38.8 XL Ya Yb mm: 41.2...46.8

Remarks:

: C.D.C. # 391 7934

Overflow restriction 0.55 mm - Part No. ..303

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : CUM Edition : 07.07.92 replaces : 19.06.90 Calibrating oil : ISO-4113

: VE4/12F1250R374 Injection pump Type number : 0 460 424 057

Customer Part-No. :

Customer-specific information : CDC Customer

Engine : 4 BTA 3.9 IND

Power KW: 88 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm:  $\leftarrow 0.02(0.06)$ 

Outlet : A

Injection-pump setting values Test specifications in parentheses Fiming-device travel

1/min: 850 Speed Charge press. hPa: 1000 Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 850 Speed Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/ 1000s:: 85.50...86.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 365

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1310 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 61.00...67.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...140.00

mind 1000s.: 70.00

Overflow : 55.60...139.00 electromagnet volt: 12 quantity cm3/10s: (55.60...139.00) Inspection—pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 350 1/min: 1100 2nd speed hPa: 1000 Charge press LDA-stroke mm: 6.6 mm: 4.90...5.70 TD travel Shutoff mm: (4.60...6.00) electromagnet Volt: 12 Del. quantity cm3/: 79.50...80.50 Shutoff 1000s.: (76.00...84.00) 1/min: 1420 electromagnet Volt: 12 3rd speed 1/min: 850 2nd speed Charge press hPa: 1000 Charge press. hPa: 1000 TD travel mm: 4.00...4.40 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) mm: (3.50...4.90) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Charge press hPa: 1000 1/min: 1350 4th speed Charge press. hPa: 1000 TD travel mm: 1.80...2.60 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000\$.. (15.00...55.00) mm: (1.50...2.90) Shutoff electromagnet Volt: 12 1/min: 1310 5th speed Charge press. hPa: 1000 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 61.00...67.00 1000s.: (58.00...70.00) 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump bar: 4.00...4.60 pressure 1/min: 1250 9th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff 1/min: 850 2nd speed electromagnet Volt: 12 Del. quantity cm3/: 74.50...77.50 1000s.: (73.00...79.00) 10th speed 1/min: 1100 Charge press. hPa: 1000 Supply-pump bar: 5.60...6.20 pressure Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 3rd speed 1/min: 1100 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 77.00...80.00 1000s.: (75.00...82.00) Supply-pump bar: 6.70...7.30 pressure 1/min: 850 12th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 41.70...83.40 Overflow Del. quantity cm3/: 63.50...64.50 cm3/10s: (41.70...83.40) quantity 1000s.: (60.00...68.00) 2nd speed 1/min: 1250 1/min: 500 20th speed Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Voit: 12

Shutoff

Del. quantity cm3/: 89.00...99.00 1000s.: -

Mech. shutoff: Mech. Abstellung:

1st speed 1/min: 1400 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 365

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 365

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000s.: (6.00...16.00)

cm3/: 5.5 Dispersion

1000s.: (7.0)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...140.00 1000s.: (70.00...140.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00

1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...140.00 1000S.: (70.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0 Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 mm: 1.0...1.4 MS

SVS max. mm: 2.4 mm: 6.6 LDA stroke

XK mm: 21.8...23.8 mm: 13.2...16.7 XL Ya

mm: 35.8...37.8 Yb mm: 43.3...48.7

Remarks:

Operate control lever after each 6925 manifold-pressure compensator pressure

\* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet

: 01.07.92 Edition Calibrating oil : ISO-4113

: VE6/12F1350R329-1 Injection pump Type number : 0 460 426 120

Customer-specific information Customer : IVECO-FIAT

Engine : 8060.25,241

KW: 100 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 683 901 920 assembly

Openina

Pressure bar: 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed Charge press. hPa: 1000

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200 Charge press hPa: 1000 Setting value bar: 7.70...8.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 96.00...97.00

Shutoff

electromagnet Volt: 12 cm3/: 5.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: 4.0

Full-load speed regulation

1/min: 1500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...115.00 mind 1000s.: 75.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200 Charge press hPa: 1000

cm3/Inj.-qty.

difference 1000s.: 12.00...20.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1200 1.Speed Charge press hPa: 1000

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TD-travel	+	Supply-pump	
	1.401.60*	pressure bar:	8.308.90
Shutoff	+	Shutoff	
electromagnet Volt:		electromagnet Volt:	12
SP press.—dif.measu	rement +	<del>-</del>	
pompa di mandata (F	P)	Overlow quantity at	overflow valve:
1. Speed 1/min:	1200 +		
Charge press hPa:	1000	1st speed 1/min:	500
Supply pump		Charge press. hPa:	
pressure	1	Shutoff	,000
difference bar:	0.000.40#	electromagnet Volt:	12
Shutoff		Overflow :	41 70 83 30
electromagnet Volt:	12	quantity cm3/10s:	
ottooti ollagi kee totet	1	2nd speed 1/min:	
Inspection-pump tes	t specifications $oxed{\mathbb{I}}$	Charge press. hPa:	
Test specifications	in parentheses	Shutoff	(0.00
rest specifications	in parentieses		10
Timing device chara	-tanistis.	electromagnet Volt:	
mining device chara	cienstic:	Overflow :	
4-4	4750	quantity cm3/10s:	(55.60159.00)
1st speed 1/min:			
	1000	Delivery-quant. and	breakaway char.:
	3.604.40		
	(3.304.70)		
electromagnet Volt:		1nd speed 1/min:	500
2nd speed 1/min:		Charge-air pressure	-setting
Charge press hPa:	1000 +	point hPa:	
TD travel mm:	3.003.40	LDA-stroke mm:	3.0
mm:	(2.503.90)	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt:	12 $\downarrow$	Del. quantity cm3/:	
3rd speed 1/min:			(78.5084.50)
	1000	2nd speed 1/min:	
	0.701.50	Charge press. hPa:	
	(0.401.80)	Shutoff	1000
Shutoff	T		12
electromagnet Volt:	12 T	electromagnet Volt:	
etecti dilagnet vott.	T	Del. quantity cm3/:	
Complete many management			(0.003.00)
Supply-pump pressure	e characteristic:	3rd speed 1/min:	
Andrews Almine	TOO T	Charge press. hPa:	1000
1st speed 1/min:		Shutoff	4.00
Charge press. hPa:	1900 +	electromagnet Volt:	12
Shab ra-brimb		Dal. quantity cm3/:	37.0043.00
	5.005.60		(34.0046.00)
Shutoff	+	4th speed 1/min:	1350
electromagnet Volt:		Charge press. hPa:	1000
2nd speed 1/min:		Shutoff	
Charge press. hPa:	1000 +	electromagnet Volt:	12
Supply-pump	+	Del. quantity cm3/:	
pressure bar:	6.607.20		(91.0097.00)
Shutoff	1	5th speed 1/min:	
electromagnet Volt:	12	Charge press. hPa:	
3rd speed 1/min:		Shutoff	1000
	1000	electromagnet Volt:	12
Supply-pump	I	Del. quantity cm3/:	
	7.708.30		
Shutoff	1.100.00		(93.5099.50)
	13	6th speed 1/min:	
electromagnet Volt:		Charge press. hPa:	1000
4th speed 1/min:		Shutoff	40
Charge press. hPa:	1000 +	electromagnet Volt:	72
	+		

Del. quantity cm3/: 90.50...93.50 1000s.: (89.00...95.00) TD-travel : 1.40...1.60# difference mm: (1.40...1.60) 1/min: 500 7th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 66.50...67.50 SP press.—dif.measurement: 1000s.: (64.00...70.00) pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: 1000 Mech. shutoff: Mech. Absteliuna: Supply pumppressure : 0.00...0.40# 1st speed 1/min: 1350 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 difference bar: (0.00...0.40) Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Shutoff Automatic starting fuel delivery: electromagnet volt: 12 1st speed 1/min: 150 Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00...125.00 1000s.: (85.00...120.00) 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed 1/min: 250 Idle delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 36.00...60.00 1000s.: (36.00...60.00) 1/min: 350 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Dispersion cm3/: 3.5 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...115.00 1000s.: (75.00...115.00) 1000s.: (4.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Shutoff electromagnet: Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Cut-in min voltage : 10.0 Load-dependent start of delivery: Rated voltage : 12.0 Inj.-qty.dif.measurement: Mounting and assembly dimensions: 1st speed 1/min: 1200 Charge press. hPa: 1000 Inj.-qty. cm3/ : 12.00..20.00\* difference 1000S.: (12.00...20.00) mm: 5.0...5.4 LDA stroke mm: 3.0 mm: 37.9...39.9 Shutoff mm: 43.5...49.1 electromagnet Volt: 12 1/min: 1200 2nd speed Remarks: Charge press. hPa: 1000 cm3/: 5.00...7.00 Inj.-qty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1200 1st speed Charge press. hPa: 1000

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : CLM Edition : 06.07.92 : 17.05.89 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1250R351 Type number : 0 460 426 130 Customer Part-No. : Customer-specific information Customer : CDC Engine : 6 BTA-590 A Power KW: 135 1/min: 2500 Speed TEST BENCH REQUIREMENTS Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 027 assembly Openina bar: 250.00...253.00 Pressure Perforated-plate diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery block mm: 1.15 Piston stroke

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 850 Charge press. hPa: 1400 Setting value mm: 2.20...2.60

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850 Charge press hPa: 1400

Setting value bar: 6.10...6.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1400

Del. quantity cm3/

1000s.: 79.00...80.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 58.50...59.50

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KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1370 Speed Charge press hPa: 1400

Del. quantity cm3/

1000s.: 61.00...67.00

KSB/AFB

valve Volt: 12

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Shutoff	+	2nd speed 1/min:	850
electromagnet Volt: 12	1		1400
-	+	Supply-pump	
Start:	+	pressure bar:	6.105.70
	+	KSB/AFB	
Speed 1/min: 100	+	valve Volt:	12
Del. quantity cm3/: 70.0		Shutoff	
mind 1000s.: 70.0	10 +	electromagnet Volt:	12
KSB/AFE	+	3rd speed 1/min:	
Valve Volt: 12	+	Charge press. hPa:	1400
Shutoff	+	Supply-pump	
electromagnet Volt: 12	+		7.708.30
***	†	KSB/AFB	
Inspection pump test spe		valve Volt:	12
Test specifications in p	parentheses +	Shutoff	4.00
T1=1 d	· · · · · · · · · · · · · · · · · · ·	electromagnet Volt:	12
Timing-device characteri	stic:		
2nd aread 1/min 1000	. †	Overlow quantity at	overflow valve:
2nd speed 1/min: 1000		.1 _ 4	500
Charge press hPa: 1400		1st speed 1/min:	500
TD travel mm: 2.80 mm: (2.5		KSB/AFB	40
KSB/AFB	1	valve Volt:	12
valve Volt: 12	Ť	Shutoff	13
Shutoff	Ť	electromagnet Volt: Overflow:	14 70 07 10
electromagnet Volt: 12	T	quantity cm3/10s:	41.70 83.40
3rd speed 1/min: 850	T	2nd speed 1/min:	
Charge press hPa: 1400	I	Charge press. hPa:	
TD travel mm: 2.20		KSB/AFB	1400
	03.10)	valve Volt:	12
KSB/AFB	I	Shutoff	16
valve Volt: 12	I	electromagnet Volt:	12
Shutoff	1		55.60139.00
electromagnet Volt: 12	1	quantity cm3/10s:	
4th speed 1/min: 700	1	quarterty emprison.	()).00()/.00/
Charge press hPa: 1400	. 1	Delivery-quant. and	breakaway chan -
TD travel mm: 0.80		beervery quarter and	Dicandiday cital
	01.90)		
KSB/AFB	1	1nd speed 1/min:	700
valve Volt: 12	1	Charge-air pressure	
Shutoff	+	point hPa:	745
electromagnet Volt: 12	+		6.6
8th speed 1/min: 400*		KSB/AFB	
TD travel mm: 3.00		valve Volt:	12
	04.00)	Shutoff	
KSB/AFB	+	electromagnet Volt:	12
valve Volt: 12	+	Del. quantity cm3/:	76.0077.00
Shutoff	†		(72.0081.00)
electromagnet Volt: 12	+	2nd speed 1/min:	
	+	Charge press. hPa:	1400
Supply-pump pressure cha	racteristic:	KSB/AFB	A
4-4 4/ 2 700	+	valve Volt:	12
1st speed 1/min: 500	<u> </u>	Shutoff	40
Charge press. hPa: 1400	†	electromagnet Volt:	
Supply-pump	†	Del. quantity cm3/:	
pressure bar: 4.50	+		(0.003.00)
KSB/AFB	†	3rd speed 1/min:	
valve Volt: 12	†	Charge press. hPa:	1400
Shutoff	†	KSB/AFB	42
electromagnet Volt: 12	+	valve Volt:	17

Shutoff	Mech. shutoff:
electromagnet Volt: 12	Mech. Abstellung:
Del. quantity cm3/: 0.0015.00	
1000s.: (0.0015.00)	1st speed
4th speed 1/min: 1420	
	Charge press. hPa: 1400
Charge press. hPa: 1400	Del. quantity cm3/: 0.003.00
KSB/AFB +	1000s.: (0.003.00)
valve Volt: 12	Shutoff
Shutoff	electromagnet volt: 12
electromagnet Volt: 12	KSB/AFB
Del. quantity cm3/: 15.0055.00	valve Volt: 12
4000c - (45 00 55 00)	valve volt: 12
1000s.: (15.0055.00)	· · · · · · · · · · · · · · · · · · ·
5th speed 1/min: 1370	Electr. shutoff:
Charge press. hPa: 1400	
KSB/AFB	1st speed 1/min: 375
valve Volt: 12	Del. quantity cm3/: 0.003.00
Shutoff	10008.: (0.003.00)
electromagnet Volt: 12	
	KSB/AFB
Del. quantity cm3/: 61.0067.00	valve Volt: 12
1000s.: $(58.0070.00)$	
10th speed 1/min: 1100 +	Idle delivery:
Charge press. hPa: 1400	
KSB/AFB	1st speed 1/min: 375
valve Volt: 12	
	KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 77.0083.00	electromagnet Volt: 12
1000s.: (75.5084.50)	Del. quantity cm3/: 4.006.00
11th speed 1/min: 850	10005.: (0.0010.00)
Charge press. hPa: 1400	
	Dispersion cm3/: 5.5
KSB/AFB	1000s.: (7.0)
valve Volt: 12	2nd speed 1/min: 400
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm3/: 79.5086.50	Shutoff
1000s.: (78.0088.00)	electromagnet Volt: 12
12th speed 1/min: 1250	
	Del. quantity cm3/: 0.004.00
Charge press. hPa: 1400	1000s.: (0.004.00)
KSB/AFB	3rd speed 1/min: 325
valve Volt: 12	KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quyntity cm3/: 79.0080.00	
	electromagnet Volt: 12
1000\$.: (76.5082.50)	Del. quantity cm3/: 12.5020.50
18th speed 1/min: 500	1 <b>00</b> 0\$.: -
KSB/AFB	
valve Volt: 12	Automatic starting fuel delivery:
Shutoff	
electromagnet Volt: 12	1st speed 1/min: 150
Del. quantity cm3/: 58.5059.50	
40000 (5/ 50 (7 50)	KSB/AFB
1000s.: (54.5063.50)	valve Volt: 12
20th speed 1/min: 500 +	Shutoff
Charge press. hPa: 1400	electromagnet Volt: 12
KSB/AFB	Del. quantity cm3/: 80.00160.00
valve Volt: 12	1000s.: (80.00160.00)
Shutoff	10003., (00.00.,.100.00)
and the second s	and annual Alman 2/2
electromagnet Volt: 12	2nd speed 1/min: 240
Del. quantity cm3/: 91.50105.50	KSB/AFB
1000s.: -	valve Volt: 12
+	
4	

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...60.00

1000s.: (29.00...60.00)

4th speed 1/min: 100

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...150.00 1000s.: (70.00...150.00)

### Shutoff electromagnet:

Cut-in

min voltage : 12.0 : 10.0 Rated voltage

### Mounting and assembly dimensions:

Designation

mm: 3.6...3.8

KF mm: -

MS mm: 0.3...1.2

SVS max. mm: 4.4 LDA stroke mm: 6.6

mm: 34.8...38.8 Ya

mm: 44.0...49.2 Yb

Remarks:

: C.D.C. # 391 4928

Operate control lever after each manifold-pressure compensator pressure change.

- \* Correction at adjusting nut (46)
- \* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : CUM Edition : 06.07.92 replaces : 12.07.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1400R367 Type number : 0 460 426 137

Customer Part-No. :

Customer-specific information

Customer

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically: 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mn: +0.02(0.06)

: D Outlet

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 850 Speed

Setting value mm: 3.80...4.20

Shutoff .

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850

Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 56.50...57.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1450

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...110.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 5.40...6.20 TD travel mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 850

G10

TD travel mm: 3.80...4.20 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 51.50...54.50 1000s.: (50.00...56.00) mm: (3.30...4.70) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 1/min: 850 10th speed TD travel mm: 0.70...1.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.50...56.50 1000s.: (50.50...58.50) mm: (0.40...1.80) Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 12th speed 1/min: 1100 1/min: 500 1st speed Shutoff Supply pump electromagnet Volt: 12 Del. quyntity cm3/: 56.50...57.50 1000s.: (54.00...60.00) 20th speed 1/min: 500 bar: 2.50...3.10 pressure Shutoff electromagnet Volt: 12 1/min: 850 2nd speed Shutoff Supply-pump electromagnet Volt: 12 bar: 3.90...4.50 Del. quantity cm3/: 42.00...50.00 1000s.: (40.00...52.00) pressure Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Mech. shutoff: Supply-pump Mech. Abstellung: bar: 4.90...5.50 pressure Shutoff 1st speed 1/min: 1400 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: 12 1/min: 500 1st speed Shutoff Electr. shutoff: electromagnet Volt: 12 : 41.70...83.40 1st speed 1/min: 375 quantity cm3/10s: (41.70...83.40) Del. quantity cm3/: 0.00...3.00 1/min: 1400 2nd speed 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 Idle delivery: : 55.60...139.00 Overflow *quantity* cm3/10s: (55.60...139.00) 1st speed 1/min: 375 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 8.00...14.00
1000s.: (6.00...16.00)
Dispersion cm3/: 5.5 Delivery-quant, and breakaway char.: 2nd speed 1/min: 1580 Shutoff 1000s.: (7.0) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 2nd speed 1/min: 450 Shutoff 1000s.; (0.00...3.00) electromagnet Volt: 12 1/min: 1490 3rd speed Del. quantity cm3/: 0.00...6.00 Shutoff 1000s.: (0.00...6.00) electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 5th speed 1/min: 1450 Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.00...46.00) electromagnet Volt: 12 Del. quantity cm3/: 55.00...115.00 1000s.: (55.00...115.00) 1/min: 1400 9th speed

2nd speed 1/min: 400

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 25.00...65.00 1000s.: (25.00...65.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...110.00 1000s.: (50.00...110.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

# Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 MS mm: 1.3...1.7 XK mm: 18.8...20.8 mm: 9.6...13.0 mm: 34.8...38.8 mm: 39.3...44.7 XL Ya Yb

Remarks:

: C.D.C. # 391 7542

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : CUM Edition : 08.07.92 : 23.10.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369 Type number : 0 460 426 138

Customer Part-No. :

Customer-specific information Customer

: 6BT- 5.9 IND. Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 750

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.30...3.90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850

Del. quantity cm3/ 1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000S.: 6.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1040

Del. quantity cm3/

1000s.: 53.00...59.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

TD travel mm: 4.60...5.40

mm: (4.30...5.70)

Shutoff

electromagnet Volt: 24 1/min: 750 3rd speed

TD travel mm: 3.00...3.40 Shutoff mm: (2.50...3.90) electromagnet Volt: 24 Del. quantity cm3/: 63.50...66.50 1000s.: (62.00...68.00) 10th speed 1/min: 750 Shutoff electromagnet Volt: 24 4th speed 1/min: 500 mm: 1.20...2.00 TD travel Shutoff mm: (0.90...2.30) electromagnet Volt: 24 Del. quantity cm3/: 64.00...67.00 1000s.: (62.00...69.00) 12th speed 1/min: 850 Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 66.50...67.50
1000S.: (64.00...70.00) 1/min: 500 1st speed Supply-pump pressure bar: 2.30...2.90 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 40.50...48.50 1000s.: (38.50...50.50) electromagnet Volt: 24 2nd speed 1/min: 750 Supply-pump pressure bar: 5.30...3.90 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1000 3rd speed Supply-pump bar: 4.50...5.10 pressure Shutoff 1000s.: (0.60...3.00) electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 500 1st speed Shutoff 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1000 quantity 2nd speed Idle dalivery: Shutoff electromagnet Volt: 24 1st speed 1/min: 450 : 55.60...139.00 Overflow Shutoff quantity cm3/10s: (55.60...139.00) electromagnet Volt: 24 Del. quantity cm3/: 6.00...12.00 1000s.: (4.00...14.00) Delivery-quant. and breakaway char.: cm3/: 5.5 1000s.: (7.0) 1/min: 500 Dispersion 2nd speed 1/min: 1120 2nd speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) 3rd speed 1/min: 1060 Shutoff Automatic starting fuel delivery: electromagnet Volt: 24
Del. quantity cm3/: 25.00...55.00
1000S.: (25.00...55.00)
5th speed 1/min: 1040 1st speed 1/min: 130 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 70.00...130.00
1000S.: (70.00...130.00) Shutoff 1/min: 240 2nd speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 5.00...35.00
1000s.: (5.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

### Shutoff electromagnet:

Cut-in

Rated voltage : 20.0 : 24 n

### Mounting and assembly dimensions:

Designation

mm: -

mm: 5.0...5.4 mm: 0.8...1.2 KF MS

SVS max. mm: 1.2

XΚ mm: 18.8...20.8 mm: 9.9...13.3 XL mm: 34.8...38.8 mm: 38.3...43.7 Ya Yb

Remarks:

: C.D.C. # 391 7563

Overflow restriction 0.55 mm - Part No.

..303

Note inst. in remarks column

Test scheet : CAS : 08.07.92 Edition replaces : 07.11.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371 Type number : 0 460 426 140

Customer Part-No. :

Customer-specific information Customer : CASE

: 6 T 590 Engine

Power KW: 79

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temo.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 C27 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750

Del. quantity cm3/

**1000s.: 61.50...62.5**0

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000S.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160

Del. quantity cm3/

1000s.: 41.00...47.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...95.00

1000s.: 45.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 5.00...5.80

mm: (4.70...6.10)

Shutoff	Del. quantity cm3/: 41.0047.00
electromagnet Volt: 12	1000s.: (38.0050.00)
3rd speed 1/min: 750	- 9th speed 1/min: 1100
TD travel mm: 2.603.00	- Shutoff
mm: (2.103.50)	electromagnet Volt: 12
electromagnet Volt: 12	- Del. quantity cm3/: 58.5061.50 - 1000s.: (57.0063.00)
4th speed 1/min: 500	- 12th speed 1/min: 750
TD travel mm: 0.601.40	- 12th speed 17mm: 730 - Shutoff
mm: (0.301.70)	- electromagnet Volt: 12
Shutoff	- Del. quyntity cm3/: 61.5062.50
electromagnet Volt: 12	- 1000s.: (59.0065.00)
1	- 20th speed 1/min: 500
Supply-pump pressure characteristic:	- Shutoff
4	electromagnet Volt: 12
1st speed 1/min: 500	- Del. quantity cm3/: 53.5060.50
Supply-pump pressure bar: 3.804.40	- 1000s.: (52.0062.00)
pressure bar: 3.804.40	Mark akvisast.
electromagnet Volt: 12	- Mech. shutoff:
2nd speed 1/min: 750	- Electr. shutoff:
Supply-pump	Lecti. Shotoii.
pressure bar: 4.905.50	- 1st speed 1/min: 450
Shutoff	- Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	- 1000s.: (0.003.00)
3rd speed 1/min: 1100	-
Supply-pump	- Idle delivery:
pressure bar: 6.407.00	-
Shutoff	- 1st speed 1/min: 450
electromagnet Volt: 12	- Shutoff
Overlas a mantitus et eventles velves	electromagnet Volt: 12
Overlow quantity at overflow valve:	- Del. quantity cm3/: 9.0013.00 - 1000s.: (6.0016.00)
1st speed 1/min: 500	- Dispersion cm3/: 5.5
Shutoff	- 1000s.: (7.0)
electromagnet Volt: 12	- 2nd speed 1/min: 500
Overflow : 41.7083.40	- Shutoff
quantity cm3/10s: (41.7083.40)	- electromagnet Volt: 12
2nd speed 1/min: 1100	- Del. quantity cm3/: 0.004.00
Shutoff	- 1000s.: (0.004.00)
electromagnet Volt: 12	-
Overflow : 55.60139.00	<ul> <li>Automatic starting fuel delivery:</li> </ul>
quantity cm3/10s: (55.60139.00)	10t appel 1/min 220
Delivery-quant. and breakaway char.:	- 1st speed 1/min: 220 - Shutoff
The civery quarter and breakaway chair.	- electromagnet Volt: 12
$\mathbf{I}$	- Del. quantity cm3/: 45.0095.00
2nd speed 1/min: 1230	- 1000s.: (45.0095.00)
Shutoff	-
electromagnet Volt: 12	- 2nd speed 1/min: 420
Del. quantity cm3/: 0.003.00	- Shutoff
1000s.: (0.003.00)	- electromagnet Volt: 12
3rd speed 1/min: 1180	- Del. quantity cm3/: 40.0070.00
Shutoff	- 1000s.: (40.0070.00)
electromagnet Volt: 12 Del. quantity cm3/: 15.0045.00	/th anged 1/min. 100
1000s.: (15.0045.00)	- 4th speed 1/min: 100 - Shutoff
5th speed 1/min: 1160	- electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 45.0095.00
electromagnet Volt: 12	- 1000s.: (45.0095.00)

## Shutoff electromagnet:

Cut-in min voltage Rated voltage : 10.0 : 12.0

## Mounting and assembly dimensions:

Designation

K KF mm: mm: 5.0...5.4

mm: 0.8...1.2 MS SVS max. mm: 4.5

mm: 18.8...20.8 mm: 11.3...14.7 mm: 34.8...38.8 mm: 40.2...45.8 XK XL Ya Yb

Remarks:

: C.D.C. # 391 7935

Overflow restriction 0.55 mm - Part No.

. .303

Note inst. in remarks column

Test scheet : CUM

: 06.07.92 Edition replaces : 12.07.89

Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R372 Type number : 0 460 426 141

Customer Part-No. :

Customer-specific information

Customer : CDC

: 68T-5.9 IND. Enaine

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically: 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.3

mm: +-0.02(0.06)

**Outlet** : D

Injection pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 750

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 72.00...73.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 360

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1300

Del. quantity cm3/

1000s.: 51.00...57.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 5.20...6.00 TD travel

mm: (4.90...6.30)

Shutoff

electromagnet Volt: 12 1/min: 750 3rd speed

TD travel mm: 3.40...3.80 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) mm: (2.90...4.30) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 9th speed 1/min: 1250 mm: 1.30...2.10 TD travel Shutoff mm: (1.00...2.40) electromagnet Volt: 12 Del. quantity cm3/: 68.50...71.50 1000s.: (67.00...73.00) 10th speed 1/min: 900 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1/min: 500 1st speed Supply-pump pressure bar: 2.40...3.00 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...79.00 1000S.: electromagnet Volt: 12 2nd speed 1/min: 750 Supply-pump bar: 3.50...4.10 pressure 12th speed 1/min: 1100 Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 electromagnet Volt: 12 Del. quyntity cm3/: 73.00...74.00 1000s.: (70.50...76.50) Supply-pump bar: 4.80...5.40 1/min: 500 pressure 20th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 64.00...72.00 1000s.: (62.00...74.00) Overlow quantity at overflow valve: 1/min: 500 1st speed Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 : 41.70...83.40 Overflow 1st speed 1/min: 1250 Del. quantity cm3/: 0.00...3.00 cm3/10s: (41.70...83.40) quantity 2nd speed 1/min: 1250 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity Electr. shutoff: Delivery-quant. and breakaway char.: 1000s.: (0.00...3.00) 1/min: 1390 2nd speed Shutoff Idle delivery: electromagnet Volt: 12 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) 1st speed 1/min: 360 Shutoff 1/min: 1400 3rd speed electromagnet Volt: 12 Shutoff Del. quantity cm3/: 8.00...14.00 electromagnet Volt: 12 1000s.: (6.00...16.00) Del. quantity cm3/: 0.00...3.00 cm3/: 5.5 1000s.: (7.0) Dispersion 1000s.: (0.00...3.00) 5th speed 1/min: 1300 1/min: 450 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00)

## Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 0.6...1.0 XK mm: 18.8...20.8 XL mm: 11.1...14.5

Ya mm: 34.8...38.8 Yb mm: 41.0...46.6

Remarks:

: C.D.C. # 391 6947

Note inst. in remarks column

Test scheet : CUM Edition : 06.07.92 : 23.10.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-3 Type number : 0 460 426 149

Customer Part-No. :

Customer-specific information

Customer : CDC

: 6 BTA-590 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

mn: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.85

mm: +-0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Charge press. hPa: 1000 Setting value mm: 1.40...1.80

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000

Setting value bar: 3.20...3.80

Full-load del. with charge press.:

1/min: 750 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 82.00...83.00 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500 Del. quantity cm3/

1000s.: 40.00...41.00

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/ 1000s.: 4.00...8.00

Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 1050 hPa: 1000 mm: 2.30...3.10 Charge press

TD travel mm: (2.00...3.40)

1/min: 750 3rd speed Charge press hPa: 1000

nvm: 1.40...1.80 TD travel

mm: (0.90...2.30)

Del. quyntity cm3/: 82.00...83.00 1000S.: (79.50...85.50) 4th speed 1/min: 600 Charge press hPa: 1000 mm: 0.40...1.20 18th speed 1/min: 500 Del. quantity cm3/: 40.00...41.00 1000s.: (36.00...45.00) TD travel mm: (0.10...1.50) 1/min: 500 Supply-pump pressure characteristic: 20th speed Charge press. hPa: 1000 1st speed Del. quantity cm3/: 82.00...90.00 1000s.: -1/min: 500 Charge press. hPa: 1000 Supply-pump bar: 2.10...2.70 pressure Mech. shutoff: 1/min: 750 2nd speed Mech. Abstellung: Charge press. hPa: 1000 1st speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 Supply-pump bar: 3.20...3.80 1/min: 1050 pressure 3rd speed Charge press. hPa: 1000 1000s.: (0.00...3.00) Supply-pump bar: 4.30...4.90 pressure Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 375 Del. quantity cm3/: 4.00...8.00 1st speed 1/min: 500 1000s.: (1.00...11.00) Dispersion cm3/: 5.5 1000S:: (7.0) 2nd speed 1/min: 500 Del. quantity cm3/: 0.00...4.00 1000S:: (0.00...4.00) Overflow : 41.70...83.40 cm3/10s: (41.70...83.40) quantity 2nd speed 1/min: 1250 Charge press. hPa: 1000 : 55.60...139.00 cm3/10s: (55.60...139.00) Overflow quantity Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 240 Del. quantity cm3/: 60.00...110.00 1nd speed 1/min: 700 1000s.: (60.00...110.00) Charge-air pressure-setting hPa: 450 point 1/min: 420 2nd speed Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00) Del. quantity cm3/: 67.00...68.00 1000s: (63.00...72.00)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
1000s: (0.00...3.00)
3rd speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm3/: 15.00...55.00 4th speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 1000s.: (70.00...120.00) Mounting and assembly dimensions: 1000s.: (15.00...55.00) Designation 1/min: 1300 5th speed K mm: -Charge press. hPa: 1000 KF mm: 5.0...5.4 Del. quantity cm3/: 65.00...71.00 mm: 1.2...1.6 mm: 2.2 MS 1000S:: (62.00...74.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/: 73.50...76.50
1000S:: (72.00...78.00)
10th speed 1/min: 1050 SVS max. mm: 34.8...38.8 Ya mm: 42.7...48.1 Yb Remarks: : C.D.C. # 391 7038 Charge press. hPa: 1000 Del. quantity cm3/: 78.00...81.00 1000s.: (76.50...82.50)

12th speed

1/min: 750

Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CUM

Edition : 06.07.92 replaces : 23.10.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-4 Type number : 0 460 426 150

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Open ing

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block mm: 1.85 Piston stroke

mm: +-0.02(0.06)

Outlet. : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Charge press hPa: 1000

Setting value bar: 3.20...3.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 82.00...83.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 4.00...8.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1300 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 24

Delivery-quant, and breakaway char .: Inspection pump test specifications Test specifications in parentheses 1nd speed 1/min: 700 Timing-device characteristic: Charge-air pressure-setting hPa: 450 1/min: 1050 2nd speed Shutoff Charge press nPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 67.00...68.00 1000s.: (63.00...72.00) TD travel mm: 2.30...3.10 mm: (2,00...3.40) Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 1/min: 750 3rd speed electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1330 hPa: 1000 Charge press mm: 1.40...1.80 mm: (0.90...2.30) TD travel Shutoff electromagnet Volt: 24 4th speed 1/min: 600 Charge press hPa: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) TD travel mm: 0.40...1.20 mm: (0.10...1.50) charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24
Del. quantity cm3/: 65.00...71.00
1000S.: (62.00...74.00)
9th speed 1/min: 1250 Supply-pump pressure characteristic: 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 bar: 2.10...2.70 Shutoff pressure electromagnet Volt: 24
Del. quantity cm3/: 73.50...76.50
1000S.: (72.00...78.00) Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 Charge press. hPa: 1000 Shutoff Charge press. hPa: 1000 Supply-pump bar: 3.20...3.80 pressure Shutoff electromagnet Volt: 24 3rd speed 1/min: 1050 Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff Supply-pump bar: 4.30...4.90 pressure Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 82.00...83.00 1000S.: (79.50...85.50) electromagnet Volt: 24 Overlow quantity at overflow valve: 1/min: 500 18th speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 40.00...41.00
1000S.: (36.00...45.00)
20th speed 1/min: 500 1st speed 1/min: 500 Shutoff electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1250 Charge press. hPa: 1000 quantity 2nd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 82.00...90.00 Shutoff electromagnet Volt: 24 1000s.: -: 55.60...139.00 Overflow quantity cm3/10s: (55.60...139.00) Mech. shutoff:

Mech. Abstellung:

1/min: 1250 1st speed Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.00...8.00

1000s.: (1.00...11.00)

Dispersion cm3/: 5.5

1000s.: (7.0)

2nd speed

1/min: 500

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 200 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00)

2nd speed 1/min: 420

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 70.00...120.00

1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: -

KF mm: 5.0...5.4

G26

mm: 1.2...1.6

SVS max. mm: 2.2

mm: 34.8...38.8 Ya Yb mm: 42.7...48.1

Remarks:

: C.D.C. # 391 7037

Operate control lever after each

manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet

Edition : 08.07.92 replaces : 18.06.90 Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371-1 Type number : 0 460 426 158

Customer Part-No. :

Customer-specific information

Customer : CASE

Engine : 6 T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +0.02(0.06)

Outlet | : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750

Del. quantity cm3/

1000s.: 59.00...60.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1160 Speed

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 65.00...105.00

1000s.: 65.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 5.40...6.20 TD travel mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12 1/min: 750 3rd speed

TD travel mm: 3.10...3.50 Shutoff mm: (2.60...4.03) electromagnet Volt: 12 Del. quantity cm3/: 56.50...59.50 1000s.: (55.00...61.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 1/min: 750 12th speed mm: 1.00...1.80 mm: (0.70...2.10) TD travel Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 59.00...60.00
1000s.: (56.50...62.50)
20th speed 1/min: 500 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...50.50 1000s.: (40.50...52.50) 1/min: 500 1st speed Supply-pump pressure bar: 3.80...4.40 Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 750 2nd speed Electr. shutoff: Supply-pump pressure bar: 4.90...5.50 1/min: 425 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 1/min: 1100 3rd speed Supply-pump Idle delivery: bar: 6.40...7.00 pressure Shutoff 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 electromagnet Volt: 12
Del. quantity cm3/: 9.00...13.00
1000s.: (6.00...16.00)
Dispersion cm3/: 5.5 Overlow quantity at overflow valve: 1/min: 500 1st speed Shutoff 1000s.: (7.0) electromagnet Volt: 12 1/min: 550 2nd speed : 41.70...83.40 Overflow Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) cm3/10s: (41.70...83.40) quantity 1/min: 1100 2nd speed Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow Automatic starting fuel delivery: cm3/10s: (55.60...139.00) quantity 1/min: 180 1st speed Delivery-quant. and breakaway char .: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00) 1/min: 1230 2nd speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S:: (0.00...3.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.50...57.50 1000s.: (17.50...57.50) 1/min: 1180 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...33.00 1/min: 100 4th speed 1000s.: (13.00...33.00) 1/min: 1160 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00) 5th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.00...46.00) Shutoff electromagnet: 9th speed 1/min: 1100

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.0...5.4
MS mm: 0.8...1.2
SVS max. mm: 4.1
XK mm: 18.8...20.8
XL mm: 10.2...13.6
Ya mm: 34.8...38.8
Yb mm: 39.7...45.1

Remarks:

: C.D.C. # 391 8207

Overflow restriction 0.55 mm - Part No. ..303

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

Note inst. in remarks column

: CUM Test scheet Edition : 06.07.92 replaces : 18.06.90 Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369-1 Type number : D 460 426 167

Customer Part-No. :

Customer-specific information

Customer : CDC

: 6BT- 5.9 IND. Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Operaina .

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750

Setting value bar: 3.60...4.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900

Del. quantity cm3/ 1000s.: 73.00...74.00

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion 1000S.: (4.5)

Low-idle speed regulation

1/min: 500 Speed

Del. quantity cm3/

1000s.: 4.00...10.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1045

Del. quantity cm3/

1000s.: 60.00...66.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...130.00

1000s.: 70.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

mm: 4.80...5.60 TD travel mm: (4.50...5.90)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

H<sub>0</sub>2

	3.503.90	- Shutoff
	(3.004.40)	- electromagnet Volt: 24
Shutoff	+	bel. quantity cm3/: 70.5073.50
electromagnet Volt:	24	1000s.: (69.00,75,00)
4th speed 1/min:	500	- 10th speed 1/min: 750
	1.402.20	Shutoff
	(1.102.50)	electromagnet Volt: 24
Shutoff	(1.10.112.50)	
electromagnet Volt:	2/.	Del. quantity cm3/: 74.5077.50
etetti dilagnet vott.	24	10008.: (72.5079.50)
Committee management		12th speed 1/min: 900
Supply-pump pressur	e characteristic:	Shutoff
4	ron	electromagnet Volt: 24
1st speed 1/min:	500	- Del. quyntity cm3/: 73.0074.00
Supply-pump	1	10008.: (70.5076.50)
	2.603.20	- 20th speed 1/min: 500
Shutoff	-	- Shutoff
electromagnet Volt:	24	electromagnet Volt: 24
2nd speed 1/min:		Del. quantity cm3/: 58.5066.50
Supply-pump		10008.: (56.5068.50)
	3.604.20	1000011 (3013011.00130)
Shutoff	]	Mech. shutoff:
electromagnet Volt:	24	Mech. Abstellung:
3rd speed 1/min:		rech. Abstacturg.
	1000	1st speed 1 min 4000
Supply-pump	/ 40 5 20	1st speed 1/min: 1000
	4.605.20	Del. quantity cm3/: 0.003.00
Shutoff	1	1000s.: (0.003.00)
electromagnet Volt:	24	Shutoff
		- electromagnet volt: 24
Overlow quantity at	overflow valve:	and the second s
•		- Electr. shutoff:
1st speed 1/min:	500	
Shutoff	4	1st speed 1/min: 500
electromagnet Volt:	24	Pol. quantity cm3/: 0.003.00
Overflow :	41.7083.40	10008.: (0.003.00)
quantity cm3/10s:	(41.70 83 40)	- 100001. (0.0015,007
2nd speed 1/min:		Idle delivery:
Shutoff	1000	L tate detivery:
	2/.	1st aread 1/min EOD
electromagnet Volt: Overflow :	55 KD 470 CD	- 1st speed 1/min: 500
OVERTION7/40	55.60139.00	- Shutoff
quantity cm3/10s:	(33.60139.00)	electromagnet Volt: 24
<b>.</b>	+	- Del. quantity cm3/: 4.0010.00
Delivery-quant. and	breakaway char.:	1000s.: (2.0012.00)
	+	- Dispersion cm3/: 5.5
	4	1000s.: (7.0)
2nd speed 1/min:	1170	- 2nd speed 1/min: 540
Shutoff	4	- Shutoff
electromagnet Volt:	24	- electromagnet Volt: 24
Del. quantity cm3/:	0.003.00	- Del. quantity cm3/: 0.003.00
10005	(0.003.00)	1000s.: (0.003.00)
3rd speed 1/min:		L 100001. (0.001., J.007
Shutoff	]	Automatic stanting fuel deliveres
electromagnet Volt:	2/.	- Automatic starting fuel delivery:
		1st anond 1 fairs 170
Del. quantity cm3/:		1st speed 1/min: 130
	(25.0045.00)	- Shutoff
5th speed 1/min:	1040	electromagnet Volt: 24
Shutoff	<u> </u>	Del. quantity cm3/: 80.00140.00
electromagnet Volt:		~ 1000s.: (80.00140.00)
Del. quantity cm3/:		-
10008.:	(57.0069.00)	- 2nd speed 1/min: 250
9th speed 1/min.	1000	•

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 30.00...60.00 1000s.: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 1000S.: (70.00...130.00)

### Shutoff electromagnet:

Cut-in

: 20.0 min voltage Rated voltage : 24.0

### Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2

mm: 1.2 SVS max.

XK mm: 18.8...20.8 XL mm: 9.9...13.3 mm: 34.8...38.8 mm: 35.7...41.3 Ya Yb

#### Remarks:

: C.D.C. # 391 6972

Overflow restriction 0.55 mm - Part No. ..303

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet

: 06.07.92 Edition replaces : 28.03.90 Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R373-6 Type number : 0 460 426 172

Customer Part-No. :

Customer-specific information Customer : CUMMINS

Engine : 6 BTA5.9

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 016

Openina

Pressure bar: 147.00...150.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length ளை: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.6

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed Charge press. hPa: 750

Setting value mm: 1.50...1.90

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750 Charge press hPa: 750

Setting value bar: 3.60...4.20

electromagnet Voit: 12

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 91.00...92.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

bel. quantity cm3/

1000s.: 66.00...67.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 21.50...25.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 1100 Charge press hPa: 750

Del. quantity cm3/

1000s.: 64.50...70.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 95.00...145.00

1000s.: 95.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications - Test specifications in parentheses -	
Timing-device characteristic:	1nd speed 1/min: 600 Charge-air pressure-setting
2 4 4 4050	point hPa: 400
2nd speed 1/min: 1050	LDA-stroke mm: 6.2
Charge press hPa: 750	Shutoff
TD travel mm: 2.603.40	electromagnet Volt: 12
mm: (2.303.70)	Del. quantity cm3/: 82.5083.50
electromagnet Volt: 12	1000s.: (79.0087.00)
3rd speed 1/min: 750	2nd speed 1/min: 1170
Charge press hPa: 750	- Charge press. hPa: 750 - Shutoff
TD travel mm: 1.501.90	electromagnet Volt: 12
mm: (1.002.40)	Pel. quantity cm3/: 0.003.00
Shutoff	1000s.: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1120
4th speed 1/min: 500	Charge press. hPa: 750
Charge press hPa: 750	Shutoff
TD travel mm: 0.401.20	electromagnet Volt: 12
mn: (0.101.50)	- Del quantity cm3/: 15.0055.00
Shutoff	1000\$.: (15.0055.00)
electromagnet Volt: 12	5th speed 1/min: 1100
Construction of the state of th	Charge press. hPa: 750
Supply-pump pressure characteristic: -	Shutoff
1ot opposit 1/min. 500	electromagnet Volt: 12
1st speed 1/min: 500 -	Pel. quantity cm3/: 64.5070.50
Charge press. hPa: 750 Supply-pump	1000s.: (61.5073.50)
pressure bar: 2.503.10	- 9th speed 1/min: 1050
Shutoff	- Charge press. hPa: 750 - Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
2nd speed 1/min: 750	Del. quantity cm3/: 78.5081.50
Charge press. hPa: 750	19098.: (77.0083.00)
Supply-pump	12th speed 1/min: 750
pressure bar: 3.604.20	Charge press. hPa: 750
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 1050	Del. quyntity cm3/: 91.0092.00
Charge press. hPa: 750	1000S.: (88.5094.50)
Supply-pump - pressure bar: 4.905.50 -	18th speed 1/min: 500
pressure bar: 4.905.50 - Shutoff -	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 66.0067.00
otooti onagriot votti. Te	1000s.: (62.5070.50)
Overlow quantity at overflow valve:	20th speed 1/min: 500
- The state of the	Charge press. hPa: 750
1st speed 1/min: 500	Shutoff
Shutoff -	electromagnet Volt: 12
electromagnet Volt: 12	- Del. quantity cm3/: 100.00108.00
Overflow : 41.7083.40	1000s.: -
quantity cm3/10s: (41.7083.40)	•
2nd speed 1/min: 1050	Mech. shutoff:
Charge press. hPa: 750 - Shutoff -	- Mech. Abstellung:
electromagnet Volt: 12	1st speed 1/min- 1050
Overflow : 55.60139.00	- 1st speed 1/min: 1050 - Charge press. hPa: 750
quantity cm3/10s: (55.60139.00)	- Del. quantity cm3/: 0.003.00
	1000s.: (0.003.00)
Delivery-quant. and breakaway char.:	

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 21.50...25.50

1000s.: (18.50...28.50)

cm3/: 3.5 Dispersion

1000s.: (6.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 100.00...150.00

1000s.: (100.00...150.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 95.00...145.00

1000s.: (95.00...145.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

: 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS

mm: 1.3...1.7

LDA stroke mm: 6.2

mm: 34.8...38.8 Ya

Yb mm: 44.2...49.8 Remarks:

: E.D.E. # 391 7544

Operate control lever after each manifold-pressure compensator pressure

change.

\* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with

metal jacket

Note inst. in remarks column

Test scheet : CLM

Edition : 07.07.92 replaces : 29.06.92 Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8 Type number : 0 460 426 200

Customer Part-No. :

Customer-specific information

Customer : CDC

: 6BT- 5.9 IND. Engine

KW: 64 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 49.50...50.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1150

Del. quantity cm3/

1000s.: 33.50...39.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 50.00...90.00

1000s.: 50.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 6.10...6.90 mm: (5.80...7.20)

Shutoff

electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.30...3.70

mm: (2.80...4.20)

Del. quyntity cm3/: 49.50...50.50 1000s.: (47.00...53.00) 15th speed 1/min: 750 Shutoff alectromagnet Volt: 24 4th speed 1/min: 500 15th speed mm: 1.30...2.10 TD travel Shutoff mm: (1.00...2.40) electromagnet Volt: 24 Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet volt: 24
Del. quantity cm3/: 43.50...49.50
1000H.: (42.00...51.00) 1/min: 500 1st speed Supply-pump bar: 2.40...3.00 pressure 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quantity cm3/: 32.50...40.50 1000s.: (30.50...42.50) Supply-pump bar: 3.50...4.10 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1100 3rd speed Supply-pump bar: 5.10...5.70 pressure Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 600 1st speed Shutoff 1/min: 375 1st speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 : 41.70...83.40 1000s.: (0.00...3.00) quantity cm3/10s: (41.70...83.40) 2nd speed 1/min: 1100 Idle delivery: Shutoff electromagnet Volt: 24 1/min: 375 1st speed : 55.60...139.00 Overflow Shutoff cm3/10s: (55.60...139.00) electromagnet Volt: 24 Del. quantity cm3/: 17.00...23.00 *duantity* 1000s.: (15.00...25.00) Delivery-quant, and breaksway char .: cm3/: 5.5 1000s.: (7.0) Dispersion 2nd speed 1/min: 1200 1/min: 480 2nd speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1160 3rd speed Shutoff Automatic starting fuel delivery: 2nd speed 1/min: 375 5th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) Shutoff electromagnet Volt: 24
Del. quantity cm3/: 33.50...39.50
1000s.: (30.50...42.50) 1/min: 1100 12th speed 4th speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mn: -

mm: 5.0...5.4 mm: 1.0...1.4 mm: 34.8...38.8 mm: 42.4...47.6 KF MS Ya Yb

Remarks:

: C.D.C. # 392 2411

Note inst. in remarks column

Test scheet : PEU

Edition 30.05.92 replaces : 26.07.88 Calibrating oil : ISO-4113

: VE4/8F2150R316 Injection pump Type number : 0 460 484 019

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XUD7TE

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening.

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 46.50...47.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 29.50...30.50

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2375 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 18.00...24.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...85.00

1000s.: 45.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Seed.

Charge press hPa: 1000	- Shutoff
Inj.—qty. cm3/	- electromagnet Volt: 12
difference 1000s.: 29.0035.00*	- 3rd speed 1/min: 2000
Shutoff +	- Charge press. hPa: 1000
electromagnet Volt: 12	- Supply-pump
TD-travel dif.measurement	- pressure bar: 6.306.90
correttore anticipo iniezione (SV)	- Shutoff
1. Speed 1/min: 1250	- electromagnet Volt: 12
Charge press hPa: 1000	- Cooti anagrice roces 12
TD-travel	<ul> <li>Overlow quantity at overflow valve:</li> </ul>
difference mm: 0.400.60*	over tow quarterly at over flow valve.
Shutoff	- 1st speed 1/min: 500
electromagnet Volt: 12	- Shutoff
SP press.—dif.measurement	
	electromagnet Volt: 12
pompa di mandata (FP)	Overflow : 41.7083.40
1. Speed 1/min: 1250	- quantity cm3/10s: (41.7083.40)
Charge press hPa: 1000	- 2nd speed 1/min: 2100
Supply pump	- Shuteff
pressure	- electromagnet Volt: 12
difference bar: 0.100.30#	- Overflow : 55.60139.00
Shutoff +	<ul> <li>quantity cm3/10s: (55.60139.00)</li> </ul>
electromagnet Volt: 12	
1	Delivery-quant. and breakaway char.:
Inspection-pump test specifications	bearing demises as on the production, at the
Test specifications in parentheses	
1 Day of the control	- 1nd speed 1/min: 750
Timing-device characteristic:	
Tilling device that acter is it.	Charge-air pressure-setting
2nd apped 1/mins 2000	point hPa: 300
2nd speed 1/min: 2000 +	- Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 5.906.70	Del. quantity cm3/: 38.5039.50
mm: (5.607.00)	1000s.: (36.5041.50)
Shutoff +	- 3rd speed 1/min: 2525
electromagnet Volt: 12	- Charge press. hPa: 1000
3rd speed 1/min: 1250 +	- Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 3.003.40	Del. quantity cm3/: 0.006.00
mm: (2.703.70)	10005.: (0.006.00)
Shutoff	5th speed 1/min: 2375
electromagnet Volt: 12	Charge press. hPa: 1000
4th speed 1/min: 750	
	Shutoff
	electromagnet Volt: 12
TD travel mm: 1.001.80	Del. quantity cm3/: 18.0024.00
mm: (0.702.10)	1000S.: (17.0025.00)
Shutoff	8th speed 1/min: 2275
electromagnet Volt: 12	Charge press. hPa: 1000
+	Shutoff
Supply-pump pressure characteristic: +	electromagnet Volt: 12
+	Del. quantity cm3/: 33.0039.00
1st speed 1/min: 750	10005.: (32.0040.00)
Charge press. hPa: 300	9th speed 1/min: 2100
Supply-pump +	Charge press. hPa: 1000
pressure bar: 3.504.10	Shutoff
Shutoff	
	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 45.0047.00
2nd speed 1/min: 1250	1000\$.: (43.7048.30)
Charge press. hPa: 1000	10th speed 1/min: 2000
Supply-pump	Charge press. hPa: 1000
pressure bar: 4.705.30	Shutoff
<u> </u>	electromagnet Volt. 12

Del. quantity cm3/:	45.0047.00	+	Shutoff
1000s.:	(43.?048.30)	+	electromagnet Volt: 12
11th speed 1/min:		+	Del. quantity cm3/: 8.5012.50
Charge press. hPa: Shutoff	1000	†	10005.: (6.5014.50)
electromagnet Volt:	12	Í	Dispersion cm3/: 2.6 1000s.: (3.0)
Del. quantity cm3/:		Ţ	16003 (3.0)
1000s.:	-	+	High Idle:
12th speed 1/min:		+	4
Charge press. hPa: Shutoff	1000	†	1st speed 1/mi: 450
electromagnet Volt:	12	Ī	Shutoff electromagnet Volt: 12
Del. quyntity cm3/:		1	Del. quantity cm3/: 8.0012.00
1000s.:	(44.7049.30)	+	1000s.: (6.0014.00)
15th speed 1/min:		+	Dispersion cm3/: 2.6
Charge press. hPa: Shutoff	1000	†	1000s.: (3.0)
electromagnet Volt:	12	I	Residual:
Del. quantity cm3/:		+	nes radae.
1000s.:	(44.2048.80)	+	1.Rotacao 1/min: 550
17th speed 1/min:	750	+	Shutoff
Shutoff	10	†	electromagnet Volt: 12
electromagnet volt: Del. quantity cm3/:		Ī	Del. quantity cm3/: 2.006.00 1000s.: (0.507.50)
1000H.:	(28.7033.30)	Ţ	100031. (0.30.1.7.30)
18th speed 1/min:		+	Load-dependent start of delivery:
Shutoff	40	+	Injqty.dif.measurement:
electromagnet Volt: Del. quantity cm3/:		†	1et eneed 1/ein 1250
	(27.7032.30)	Ī	1st speed 1/min: 1250 Charge press. hPa: 1000
20th speed 1/min:		1	Inj.~qty. cm3/ : 29.0035.00*
Charge press. hPa:	1000	+	difference 1000s.: (28.0036.00)
Shutoff	45	+	2nd speed 1/min: 1250
electromagnet Volt: Del. quantity cm3/:		†	Charge press. hPa: 1000
	(42.2046.80)	Ī	<pre>Inj.~qty. cm3/: 27.0029.00# difference 1000s.: (27.0029.00)</pre>
1000011	(42.2340.00)	1	Shutoff
Mech. shutoff:		+	electromagnet Volt: 12
Mech. Abstellung:		+	2nd speed 1/min: 1250
1st speed 1/min:	2100	†	Charge press. hPa: 1000
Charge press. hPa:		Ī	TD-travel : 0.400.60* difference mm: (0.400.60)
Del. quantity cm3/:	0.003.00	1	Shutoff
1000s.:	(0.003.00)	+	electromagnet Volt: 12
Shutoff	13	+	4th speed 1/min: 1250
electromagnet volt:	12	İ	Charge press. hPa: 1000
Electr. shutoff:		Į	TD-travel : 0.401.00' difference mm: (0.401.00) 2nd speed 1/min: 1250
		+	2nd speed 1/min: 1250
1st speed 1/min:		+	Charge press. hPa: 1000
Del. quantity cm3/:		†	Supply pump-
10005.1	(0.003.00)	İ	pressure : 0.100.30# difference bar: (0.100.30)
Damper set qty.:		1	Shutoff
		+	electromagnet Volt: 12
LFG-setting:		+	4th speed 1/min: 1250
solidale con carcass Idle delivery:	Sa:	†	Charge press. hPa: 1000
Tare occivery:		I	Supply pump- pressure : 0.60 1.00
1st speed 1/min:	350	1	pressure : 0.601.00' difference bar: (0.601.00)
		1	

Shutoff

electromagnet Volt: 12

### Automatic starting fuel delivery:

1st speed 1/min: 250

Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (25.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00 1000s.: (44.00...84.00)

### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

### Designation

mm: 3.2...3.4 K mm: 5.1...5.5 mm: 1.2...1.6 mra: 19.7...21.7 mm: 76.0...88.0 KF MS Ya Yb

### Remarks:

\* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : VWW Edition : 02.07.92 replaces : 01.02.89 Calibrating oil : ISO-4113

Injection pump : VE4/8F2450L331 : 0 460 484 021 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 1.31 Saugd., POLO

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 3.90...4.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Del. quantity cm3/

1000s.: 23.60...24.60

Shutoff

electromagnet Voit: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 32.00...82.00 mind 1000s.: 32.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200

TD travel mm: 6.90...7.70 mm: (6.60...8.00)

Shutoff

electromagnet Volt: 12 1/min: 1500 3rd speed

mm: 3.90...4.30 TD travel

mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12 1/min: 1000 4th speed

TD travel mm: 1.60...2.40 mm: (1.30...2.70)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800

Supply-pump

pressure bar: 3.70...4.30

Shutoff	† Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1500	+ Del. quantity cm3/: 18.5021.50
Supply-pump	† 1000s.: (17.0023.00)
pressure bar: 5.406.00	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 12	+
3rd speed 1/min: 2450	+ Electr. shutoff:
Supply-pump	+
pressure bar: 7.708.30	+ 1st speed 1/min: 450
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10008: (0.003.00)
Overlow quantity at overflow valve:	Damper set qty.:
1st speed 1/min: 800	+ LFG-setting:
Shutoff	- solidale con carcassa:
electromagnet Volt: 12	Idle delivery:
Overflow : 41.7083.40	1 die detivery.
quantity cm3/10s: (27.8097.30)	1st speed 1/min: 425
2nd speed 1/min: 2450	Shutoff
Shutoff	
	electromagnet Volt: 12
electromagnet Volt: 12	† Del. quantity cm3/: 9.5011.50
Overflow : 55.60139.00	10008.: (6.5014.50)
quantity cm3/10s: (41.70152.90)	+ 2nd speed 1/min: 450
	+ Shutoff
Delivery-quant. and breakaway char.:	+ electromagnet Volt: 12
	f Del. quantity cm3/: 5.508.50
	+ 1000s.: (3.0011.00)
2nd speed 1/min: 2850	+ Dispersion cm3/: 2.0
Shutoff	+ 1000s.: (3.0)
electromagnet Volt: 12	+
Del. quantity cm3/: 0.006.00	- Residual:
10008.: (0.006.00)	1
3rd speed 1/min: 2650	1.Rotacao 1/min: 575
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 5.5015.50	Del. quantity cm3/: 2.503.50
10008.: (4.5016.50)	10008:: (1.005.00)
5th speed 1/min: 2600	
Shutoff	
electromagnet Volt: 12	+ Shutoff
	+ electromagnet Volt: 12
Del. quantity cm3/: 13.0017.00 1000s.: (11.0019.00)	+ Del. quantity cm3/: 3.005.00
	† 1000s.: (1.506.50)
	Ť
Shutoff	+ Automatic starting fuel delivery:
electromagnet Volt: 12	†
Del. quantity cm3/: 21.5023.50	+ 1st speed 1/min: 200
1000s.: (20.3024.70)	+ Shutoff
10th speed 1/min: 600	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 30.0080.00
electromagnet Volt: 12	+ 1000s.: (30.0080.00)
Del. quantity cm3/: 14.5019.50	+
1000s.: (12.0022.00)	+ 2nd speed 1/min: 400
12th speed 1/min: 1500	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 10.0030.00
Del. quyntity cm3/: 23.6024.60	10005.: (10.0030.00)
1000s.: (21.9026.30)	10005 (10.0050.00)
20th speed 1/min: 800	I /th speed 1/mins 100
COURT SPECO FRANCE OUG	+ 4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 32.00...82.00 1000s.: (32.00...82.00)

## Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

# Mounting and assembly dimensions:

Designation

K KF mm: 3.2...3.4

mm: -

mm: 1.2...1.6 mm: 32.5...36.5 mm: 53.9...64.5 MS Ya Yb

Remarks:

Charge press hPa: 1000 Setting value bar: 5.70...6.30 BOSCH-INJ.-PUMP TEST SPECIFICATIONS KSB/AFB Note inst. in remarks column valve Volt: 12 Shutoff Test scheet : FIA electromagnet Volt: 12 Edition : 03.07.92 replaces : 11.05.89 Full-load del. with charge press.: Calibrating oil : ISO-4113 Speed 1/min: 1500 Injection pump : VE4/8F2400R349 Charge press. hPa: 1000 Type number : 0 460 484 028 bel. quantity cm3/ Customer Part-No. : 1000s.: 39.70...40.70 KSB/AFB valve Volt: 12 Customer-specific information Shutoff Customer : FIAT-AUTO electromagnet Volt: 12 cm3/: 3.0Dispersion Engine : M709 BT 13.0 1000s.: (3.5) TEST BENCH REQUIREMENTS Full-load del. w/out charge press.: Overflow restricti: 1 463 456 303 Speed 1/min: 750 Del. quantity cm3/ Calibrating oil 1000s.: 26.30...27.30 °C return temp. KSB/AFB 11 with thermometer : 40...48 valve Volt: 12 Electronically : 42...50 Shutoff electromagnet Volt: 12 Inlet press., bar: 0.30...0.40 Low-idle speed regulation Calibrating nozzle-holder assembly : 1 588 901 022 1/mir:: 400 Speed Del. quantity cm3/ Openina | 1000s.: 6.00...10.00 Pressure bar: 130.00...133.00 KSB/AFB valve Volt: 12 Shutoff Test inj. tubing : 1 680 750 073 electromagnet Volt: 12 Del. quantity cm3/: 3.0; Outside diameter : 6.00 1000s.: (3.1) x Wall thickness : 2.00 mm: 450 x Length Full-load speed regulation Injection pump setting values 1/min: 2550 Speed Test specifications in parentheses Charge press hPa: 1000 Del. quantity cm3/ Timing-device travel 1000s.: 28.00...34.00 KSB/AFB 1/min: 1500 Speed valve Volt: 12 Charge press. hPa: 1000 Shutoff Setting value mm: 4.60...5.00 electromagnet Volt: 12 AFB/AFB Volt: 12 valve Start: Shutoff electromagnet Volt: 12 1/min: 100 Del. quantity cm3/: 33.00...63.00 mind 1000s.: 33.00 Supply-pump pressure mind KSB/AFB 1/min: 1500 Speed Valve Volt: 12

Shutoff electromagnet Volt: 12	+ TD travel mm: 1.302.10 mm: (0.802.60)
Load-dependent start of delivery:	+ KSB/AFB + valve Volt: 12
Inj.—qty.dif.measurement:	+ Shutoff
Speed 1/min: 1500	+ electromagnet Volt: 12 + KSB/AFB
Charge press hPa: 1000	+ valve Volt: 12
Injqty. cm3/ difference 1000s.: 19.0025.00#	+ Shutoff
KSB/AFB	+ electromagnet Volt: 12 + 6th speed 1/min: 2000
valve Volt: 12	+ Charge press. hPa: 1000
Shutoff electromagnet Volt: 12	TD travel mm: 6.907.50
TD-travel dif.measurement	mm: (6.507.90)
correttore anticipo iniezione (SV)	+ valve Volt: 12
1. Speed 1/min: 1500	+ Shutoff
Charge press hPa: 1000 TD-travel	+ electromagnet Volt: 12 + 9th speed 1/min: 300
difference mm: 0.901.10#	+ Charge press. hPa: 1000
KSB/AFB	+ TD travel mm: 2.304.70
valve Volt: 12 Shutoff	mm: (2.304.70) + Shutoff
electromagnet Volt: 12	F electromagnet Volt: 12
SP pressdif.measurement	+
pompa di mandata (FP) 1.Speed 1/min: 1500	Supply-pump pressure characteristic:
Charge press hPa: 1000	1st speed
Supply pump	Charge press. hPa: 1000
pressure	- Supply-pump
difference bar: 0.100.30* KSB/AFB	+ pressure bar: 7.808.40 + KSB/AFB
valve Volt: 12	+ valve Volt: 12
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Inspection-pump test specifications	+ 2nd speed 1/min: 2000 - Charge press. hPa: 1000
Test specifications in parentheses	+ Charge press. hPa: 1000 + Supply-pump
	+ pressure bar: 6.807.40
Timing device characteristic:	+ KSB/AFB
2nd speed 1/min: 2400	+ valve Volt: 12 + Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 8.609.40	3rd speed 1/min: 1500
mm: (8.309.70) KSB/AFB	Charge press. hPa: 1000
valve Volt: 12	+ Supply-pump + pressure bar: 5.706.30
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
3rd speed 1/min: 1500 Charge press hPa: 1000	+ Shutoff + electromagnet Volt: 12
TD travel mm: 4.605.00	4th speed 1/min: 750
mm: (4.105.50)	Charge press. hPa: 1000
KSB/AFB	+ Supply-pump
valve Volt: 12 Shutoff	+ pressure bar: 3.904.50 + KSB/AFB
electromagnet Volt: 12	T NOD/APB + valve Volt: 12
4th speed 1/min: 750	+ Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
	Τ

Overlow quantity at	overflow valve:	Shutoff
	+	electromagnet Volt: 12
1st speed 1/min: KSB/AFB	750	Del. quantity cm3/: 38.5041.50 1000s.: (37.5042.50)
valve Volt:	12 🗼	12th speed 1/min: 1500
Shutoff		Charge press. hPa: 1000
electromagnet Volt:	12	KSB/AFB
Overflow :	41 70 83 40 I	valve Volt: 12
quantity cm3/10s:	(/1 70 97 /0)	
2nd speed 1/min:	2/00	Shutoff
Zhu speed 1/min:	1000	electromagnet Volt: 12
Charge press. hPa:	1000 +	Del. quyntity cm3/: 39.7040.70
KSB/AFB	+	1000\$.: (37.9842.50)
valve Volt:	12 +	16th speed 1/min: 1100
Shutoff	<b>†</b>	KSB solenoid-operated
electromagnet Volt:	12 +	valve volt: 12
Overflow:	55.60139.00	Shutoff
quantity cm3/10s:	(55.60139.00)	electromagnet volt: 12
	1	Del. quantity cm3/: 26.4029.40
Delivery-quant. and	breakaway chan	1000H.: (24.9030.90)
501.10. y 424.11. u.n.	I canada cinar	18th speed 1/min: 750
	T	KSB/AFB
1nd speed 1/min:	1100 T	
		valve Volt: 12
Charge-air pressure		Shutoff
point hPa:		electromagnet Volt: 12
LDA-stroke mm:	6.0	Del. quantity cm3/: 26.3027.30
KSB/AFB	+	1000s.: (23.8029.80)
valve Volt:	12 +	
Shutoff	+	Mech. shutoff:
electromagnet Volt:	12 +	
Del. quantity cm3/:	33.5034.50 ↓	Electr. shutoff:
1000s.:	(31.0037.00)	
2nd speed 1/min:	2950	1st speed 1/min: 400
Charge press. hPa:		Del. quantity cm3/: 0.003.00
KSB/AFB	1	1000s.: (0.003.00)
valve Volt:	12	KSB/AFB
Shutoff	T T	valve Volt: 12
electromagnet Volt:	12 T	valve volt: 12
Dol supertite on 7/1	1 m 2 m	7 all a solution of the second
Del. quantity cm3/:	(0.003.00)	Idle delivery:
7	(0.003.00)	A
3rd speed 1/min:		1st speed 1/min: 400
Charge press. hPa:	1000 +	KSB/AFB
KSB/AFB	+	valve Volt: 12
valve Volt:	12 +	Shutoff
Shutoff	+	electromagnet Volt: 12
electromagnet Volt:	12 +	Del. quantity cm3/: 6.0010.00
Del. quantity cm3/:		1000s.: (3.0013.00)
	(4.0014.00)	Dispersion cm3/: 3.0
5th speed 1/min:		10005.: (3.5)
Charge press. hPa:		2nd speed 1/min: 520
KSB/AFB	T	KSB/AFB
valve Volt:	12	
	15	valve Volt: 12
Shutoff	13	Shutoff
electromagnet Volt:		electromagnet Volt: 12
Del. quantity cm3/:	28.0054.00	Del. quantity cm3/: 0.003.00
	(25.0037.00)	1000s.: (0.003.00)
9th speed 1/min:		3rd speed 1/min: 350
Charge press. hPa:	1000 +	KSB/AFB
KSB/AFB	+	valve Volt: 12
valve Volt:	12 +	Shutoff
	1	electromagnet Volt: 12

Del. quantity cm3/: 14.50...19.50 1000s.: -Load-dependent start of delivery: Inj.-qty.dif.measurement: 2nd speed 1/min: 1500 Charge press. hPa: 1000 Inj.-qty. cm3/: 18.00..20.00\* difference 1000s.: (18.00...20.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1500 Charge press. hPa: 1000 cm3/: 19.00..25.00# Inj. aty. difference 1000s.: (18.00...26.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Charge press. hPa: 1000 : 0.90...1.10# TD-travel difference mm: (0.90...1.10) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed Charge press. hPa: 1000 Supply pumppressure : 0.10...0.30\* difference bar: (0.10...0.30) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 350 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 23.00...53.00 1000s.: (23.00...53.00) 1/min: 450 2nd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) 1/min: 100

KSB, AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.00...63.00 1000s.: (33.00...63.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mn: 3.2...3.4 KF mm: 5.1...5.5 mm: 1.3...1.7 MS LDA stroke mm: 6.0 mm: 36.2...40.2 mm: 39.5...48.3 Yb Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ..303

4th speed

Note inst. in remarks column

Test scheet : REN

Edition 30.06.92 : 18.02.91 replaces Calibrating oil : ISO-4113

: VE4/8F2300R317-3 Injection pump Type number : 0 460 484 041

Customer Part-No. :

Customer-specific information

Customer : RNUR

: F8Q - 742 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temo.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 31.00...32.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...70.00 mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 9.00...13.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1. Speed

TD-travel

mm: 0.30...0.50# difference

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1/min: 1250 1.Speed

Supply pump pressure

difference bar: 0.10...0.30\*

Shutoff

electromagnet Volt: 12

Inspection-pump tes	t specifications	†	2nd speed 1/min: 2250	
Test specifications	in parentheses	†	Shutoff	
Timing double shows		†	electromagnet Volt: 12	0 470 00
Timing-device chara	cteristic:	†	Overflow: 55.6	0139.00
and annual Almana	2000	†	quantity cm3/10s: (55.	60139.00
2nd speed 1/min:		†	6-1:	
	7.608.40	†	Delivery-quant. and brea	kaway char.
	(7.308.70)	†		
Shutoff electromagnet Volt:	10	†	Out and the comp	
3rd speed 1/min:		†	2nd speed 1/min: 2950	
	4.104.50	†	Shutoff	
	(3.605.00)	T	electromagnet Volt: 12	F 00
Shutoff	(3.003.00/	T	Del. quantity cm3/: 0.00	0 5 00
electromagnet Volt:	12	Ι	1000s.: (0.0 3rd speed 1/min: 2650	
4th speed 1/min:		T	3rd speed 1/min: 2650 Shutoff	
TD travel mm:	1.602.40	T		
mm.	(1.302.70)	Ι	electromagnet Volt: 12 Del. quantity cm3/: 7.00	15.00
Shutoff	(1.302.70)	Ι	1000s.: (6.0	
electromagnet Volt:	12	I	5th speed 1/min: 2450	
8th speed 1/min:		1	Shutoff	
	1.904.30	1	electromagnet Volt: 12	
	(1.904.30)	1	Del. quantity cm3/: 22.0	Û 28.00
KSB/AFB		1	10005.: (21.	
valve Volt:	12	1	9th speed 1/min: 2250	
Shutoff	-	1	Shutoff	
electromagnet Volt:	12	1	electromagnet Volt: 12	
9th speed 1/min:		1	Del. quantity cm3/: 31.5	033 50
	0.603.00	1	1000s.: (30.	20 34 80)
	(0.603.00)	1	10th speed 1/min: 2000	
KSB/AFB		1	Shutoff	
valve Volt:	12	1	electromagnet Volt: 12	
Shutoff		+	Del. quantity cm3/: 30.3	032.30
electromagnet Volt:	12	+	1000s.: (29.	
-		+	11th speed 1/min: 1625	
Supply-pump pressure	e characteristic:	+	Shutoff	
		+	electromagnet Volt: 12	
1st speed 1/min:	750	+	Del. quantity cm3/: 29.7	032.70
Supply-pump		+	1000s.: (28.	9033.50)
	3.103.70	+	12th speed 1/min: 1250	
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagnet Volt: 12	
2nd speed 1/min:	1250	+	Del. quyntity cm3/: 31.0	032.00
Supply-pump		+	1000s.: (29.	2033.80)
	4.505.10	+	20th speed 1/min: 750	
Shutoff	40	+	Shutoff	
electromagnet Volt:		†	electromagnet Volt: 12	
3rd speed 1/min:	2000	†	Del. quantity cm3/: 30.1	
Supply-pump	( /0 = 00	†	1000s.: (29.	3033.90)
•	6.407.00	†		
Shutoff	42	†	Mech. shutoff:	
electromagnet Volt:	12	†	mile and the same	
0		†	Electr. shutoff:	
Overlow quantity at	overtiom valve:	†	Ash mark All the	
1st spend 4/==-	750	†	1st speed 1/min: 410	7 00
1st speed 1/min:	טכז	T	Del. quantity cm3/: 0.00	
Shutoff	10	T	1000s.: (0.0	u5.UU)
electromagnet Volt: Overflow :		Ť	Daman and attention	
quantity cm3/10c:	41.7083.40	T	Damper set qty.:	

LFG-setting: solidate con carcassa: Idle delivery:	pompa di mandata (FP): - 1st speed 1/min: 1250 - Supply pump-
1st speed 1/min: 410 Shutoff	pressure : 0.100.30* difference bar: (0.100.30) Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 6.5010.50 1000S.: (4.5012.50)	pressure : 0.100.30* difference bar: (0.100.30) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Supply pump- pressure : 0.200.60' difference bar: (0.200.60) Shutoff electromagnet Volt: 12  Automatic starting fuel delivery:  1st speed 1/min: 210
High ldte:	+ pressure : 0.200.60' + difference bar: (0.200.60)
1st speed 1/mi: 500 Shutoff	Shutoff electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 7.0011.00	Automatic starting fuel delivery:
1000s.: (5.0013.00)	+ Shutoff
Residual: 1.Rotacao 1/min: 500	electromagnet Volt: 12 Del. quantity cm3/: 45.0075.00
Shutorf electromagnet Volt: 12	1000s.: (45.0075.00) - 2nd speed 1/min: 310
Del. quantity cm3/: 1.005.00 1000s.: (1.005.00)	Shutoff electromagnet Volt: 12
Load-dependent start of delivery:	Del. quantity cm3/: 15.0045.00 1000s.: (15.0045.00)
Inj.—qty.dif.measurement:	4th speed 1/min: 100
1st speed	Shutoff
difference 1000S:: (7.709.70) Shutoff	electromagnet Volt: 12  Del. quantity cm3/: 40.0070.00  1000s.: (40.0070.00)
electromagnet Volt: 12	Church of a landau and a
3rd speed 1/min: 1250 Inj.—qty. cm3/: 9.0013.00# difference 1000S.: (9.0013.00)	Shutoff electromagnet: - Cut-in
Shutoff	min voltage : 10.0
electromagnet Volt: 12 5th speed   1/min: 1250	Rated voltage : 12.0
Inj.—qty. cm3/: 2.008.00' difference 1000S.: (2.008.00)	Mounting and assembly dimensions:
Shutoff electromagnet Volt: 12	Designation mm: 3.23.4
TD-travel dif.measurement:	+ KF mm: 5.35.7 + MS mm: 1.11.5
correttore anticipo iniezione (SV):	SVS max. mm: 2.7
1st speed 1/min: 1250	+ Ya mm: 32.636.6
TD-travel : 0.300.50# difference mm: (0.300.50)	† Yb mm: 65.778.3
Shutoff	Remarks:
electromagnet Volt: 12	+ :
2nd speed 1/min: 1250	t a contract of the second
3rd speed	+ Overflow restriction 0.55 mm - Part No
difference mm: (0.100.70)	+303
Shutoff electromagnet Volt: 12	‡
SP pressdif.measurement:	Ţ

Note inst. in remarks column

Test scheer : REN

Edition : 30.06.92 replaces : 04.12.91 Calibrating oil : ISO-4113

: VE4/8F2300R317-5 Injection bump Type number : 0 460 484 044

Customer Part-No. :

Customer-specific information

Customer

: RNUR

Engine

: F80 - 732

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test ini. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 Speed

Setting value mm: 4,10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 31.00...32.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2450 Speed

Del. quantity cm3/

1**000s.:** 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...70.00 mind 1000s.: 40.00

mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 9.00...13.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

mm: 0.30...0.50# difference

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1250

Supply pump

pressure

bar: 0.10...0.30\* difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications	in parentheses	+	Shutoff
Timin walkering the co		+	electromagnet Volt: 12
Timing-device chara	cteristic:	1	Overflow : 55.60139.00
2nd annual 1/min.	2000	†	quantity cm3/10s: (55.60139.00
2nd speed 1/min:	7.40 0.40	<b>T</b>	
	7.608.40	†	Delivery-quant. and breakaway char.
	(7.308.70)	<b>†</b>	
Shutoff	43	†	5 1 1 4/4 mmms
electromagnet Volt:		+	2nd speed 1/min: 2950
3rd speed 1/min:		+	Shutoff
TD travel mm:	4.104.50	+	electromagnet Volt: 12
mm:	(3.605.00)	+	Del. quantity cm3/: 0.005.00
Shutoff		+	1000s.: (0.005.00)
electromagnet Volt:		+	3rd speed 1/min: 2650
4th speed 1/min:		+	Shutoff
TD travel mm:	1.602.40	+	electromagnet Volt: 12
mn:	(1.302.70)	+	Del. quantity cm3/: 7.0015.00
Shutoff		1	1000s.: (6.0016.00)
electromagnet Volt:	12	+	5th speed 1/min: 2450
8th speed 1/min:		1	Shutoff
	1.904.30 B	1	electromagnet Volt: 12
	(1.904.30)	1	Del. quantity cm3/: 22.0028.00
KSB/AFB	(117311141307	$\perp$	1000s.: (21.0029.00)
valve Volt:	12	-1	9th speed 1/min: 2250
Shutoff	12	$\mathbf{I}$	Shutoff
electromagnet Volt:	12	T	
9th speed 1/min:		T	electromagnet Volt: 12
		Ť	Del. quantity cm3/: 31.5033.50
	0.603.00 A	†	1000s.: (30.2034.80)
	(0.603.00)	+	10th speed 1/min: 2000
KSB/AFB	40	†	Shutoff
valve Volt:	12	+	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 30.3032.30
electromagnet Volt:	12	+	1000s.: (29.0033.60)
		+	11th speed
Supply-pump pressur	e characteristic:	+	Shutoff
-		+	electromagnet Volt: 12
1st speed 1/min:	750	+	Del. quantity cm3/: 29.7032.70
Supply-pump		+	1000s.: (28.9033.50)
pressure bar:	3.103.70	+	12th speed 1/min: 1250
Shutoff		+	Shutoff
electromagnet Volt:	12	1	electromagnet Volt: 12
2nd speed 1/min:	1250	1	Del. quyntity cm3/: 31.0032.00
Supply-pump		1	1000s.: (29.2033.80)
	4.505.10	1	20th speed 1/min: 750
Shutoff	7.505.10	1	Shutoff
electromagnet Volt:	12	$\perp$	electromagnet Volt: 12
3rd speed 1/min:		I	
Supply-pump	2500	T	Del. quantity cm3/: 30.1033.10
	6.407.00	T	1000s.: (29.3033.90)
	0.407.90	<b>T</b>	Alamba mbasha E.E.
Shutoff	40	†	Mech. shutoff:
electromagnet Volt:	12	†	<b>_1</b>
0 1	<b>.</b> .	†	Electr. shutoff:
Overlow quantity at	overtlow valve:	†	4.
<i>a</i> , , , ,	770	+	1st speed 1/min: 410
1st speed 1/min:	750	+	Del. quantity cm3/: 0.003.00
Shutoff		+	1000s.: (0.003.00)
electromagnet Volt:		+	
Overflow:	41.7083.40	+	Damper set qty.:
quantity cm3/10s:	(41.7083.40)	+	· •
2nd speed 1/min:	2250	+	LFG-setting:

solidale con carcassa: Idle delivery:	pompa di mandata (FP): 1st speed 1/min: 1250
1st speed 1/min: 410 Shutoff	Supply pump- pressure : 0.100.30* difference bar: (0.100.30)
electromagnet Volt: 12  Del. quantity cm3/: 6.5010.50  1000s.: (4.5012.50)	Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250
Dispersion cm3/: 2.5 1000s.: (3.0)	Supply pump- pressure : 0.200.60'
High Idle:	difference bar: (0.200.60) Shutoff electromagnet Volt: 12
1st speed 1/mi: 500 Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 12  Del. quantity cm3/: 7.0011.00  1000S.: (5.0013.00)	1st speed 1/min: 210 Shutoff
Residual:	electromagnet Volt: 12 Del. quantity cm3/: 45.0075.00 1000s.: (45.0075.00)
1.Rotacao 1/min: 500 Shutoff	2nd speed 1/min: 310
electromagnet Volt: 12 Del. quantity cm3/: 1.005.00	Shutoff electromagnet Volt: 12
1000s.: (1.005.00)	Del. quantity cm3/: 15.0045.00 1909s.: (15.0045.00)
Load-dependent start of delivery: Injqty.dif.measurement:	4th speed 1/min: 100 Shutoff
1st speed 1/min: 1250 Injqty. cm3/ : 7.709.70* difference 1000s.: (7.709.70) Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 40.0070.00 10008.: (40.6070.00)
electromagnet Volt: 12 3rd speed 1/min: 1250	Shutoff electromagnet:
Inj. aty. cm3/: 9.0013.00# difference 1000S.; (9.0013.00) Thutoff	Cut-in min voltage : 10.0 Rated voltage : 12.0
electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 2.008.00'	Mounting and assembly dimensions:
difference 1000s.: (2.008.00) Shutoff	Designation K mm: 3.23.4
TD-travel dif.measurement:	KF mm: 5.35.7 MS mm: 1.11.5
correttore anticipo iniezione (SV): 1st speed 1/min: 1250	SVS max. mm: 1.8 Ya mm: 32.636.6 Yb mm: 65.778.3
TD-travel : 0.300.50# difference mm: (0.300.50) + Shutoff	Remarks:
electromagnet Volt: 12  3rd speed 1/min: 1250  TD-travel : 0.200.60' difference mm: (0.100.70)	A = KSB adjustment point B = KSB curve point
Shutoff electromagnet Volt: 12	* Unscrew KSB ball valve 2 mm
SP pressdif.measurement:	OUBCLEM VOD DOLL AGEAG E HER

H27

Note inst. in remarks column

Test scheet

: 30.06.92 Edition Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R312 Type number : 0 460 494 227

Customer Part-No. :

Customer-specific information Customer : TOGLIATTI/SU

Engine : VAZ 341 LADA

Power KW: 40

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 4.80...5.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500

Del. quantity cm3/ 1000s.: 32.50...33.50

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (2.5)

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2600 Speed

Del. quantity cm3/

1000s.: 13.00...19.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...70.00

1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400

TD travel mm: 9.10...9.90 mm: (8,80...10,20)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1500

mm: 4.80...5.20 TD travel

mm: (4.30...5.70)

Shutoff

electromagnet Volt: 12 1/min: 600 4th speed

	0.701.50	+ Shutoff
	(0.401.80)	+ electromagnet Volt: 12
Shutoff		+ Del. quantity cm3/: 28.8031.20
electromagnet Volt:	12	+ 1000s.: (27.7032.30)
5th speed 1/min:		+ 10th speed 1/min: 1000
	2.403.20	+ Shutoff
um.	(2.103.50)	electromagnet Volt: 12
Shutoff	(2.103.30)	Del. quantity cm3/: 33.8036.20
electromagnet Volt:	12	1000s.: (32.7037.30)
etectronagnet vott.	12	10005.: (52.7057.50)
Comply name anadom	a abawastawiati.	12th speed 1/min: 1500
Supply-pump pressur	e characteristic:	+ Shutoff
1-+ 1/	2/00	+ electromagnet Volt: 12
1st speed 1/min:	2400	- Del. quyntity cm3/: 32.5033.50
Supply-pump	7.40 7.70	† 1000s.: (30.7035.30)
	7.107.70	20th speed 1/min: 600
Shutoff		+ Shutoff
electromagnet Volt:		+ electromagnet Volt: 12
2nd speed 1/min:	1500	+ Del. quantity cm3/: 28.5031.50
Supply-pump		1000s.: (27.0033.00)
pressure bar:	4.805.40	-
Shutoff		Mech. shutoff:
electromagnet Volt:	12	
3rd speed 1/min:		Electr. shutoff:
Supply-pump		1
	2.603.20	1st speed 1/min: 425
Shutoff	2.009.20	Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	10008.: (0.003.00)
etectionagnet vott.	12	10003.: (0.003.00)
Overlay aventity at	- overflou valve:	Tallo del income
Overlow quantity at	over tow valve:	Idle delivery:
1-b 1/	· (00	4
1st speed 1/min:		1st speed 1/min: 425
Shutoff	- 12	Shutoff
electromagnet Volt:	12 -	electromagnet Volt: 12
	41.7083.40	Del. quantity cm3/: 8.0012.00
quantity cm3/10s:		1000s.: (5.0015.00)
2nd speed 1/min:	2400 -	Dispersion cm3/: 2.5
Shutoff	•	1000s.: (2.5)
electromagnet Volt:		+ 2nd speed 1/min: 550
	55.60139.00	- Shutoff
quantity cm3/10s:	(55.60139.00)	electromagnet Volt: 12
•	_	Del. quantity cm3/: 0.506.50
Delivery-quant. and	breakaway char.:	1000s.: (0.007.00)
,		4th speed 1/min: 650
	_	Shutoff
2nd speed 1/min:	2000	electromagnet Volt: 12
Shutoff	2700	Del. quantity cm3/: 0.003.00
electromagnet Volt:	10	10008.; (0.003.00)
		10003.; (0.003.00)
Del. quantity cm3/:		
	(0.003.00)	Automatic starting fuel delivery:
3rd speed 1/min:	2/00 -	<u> </u>
Shutoff	4.0	1st speed 1/min: 400
electromagnet Volt:		Shutoff
Del. quantity cm3/:		electromagnet Volt: 12
	(3.0013.00)	Pet. quantity cm3/: 30.0040.00
5th speed 1/min:	2600	10008.: (30.0060.00)
Shutoff	4	
electromagnet Volt:	12	- 2nd speed 1/min: 500
Del. quantity cm3/:		- Shutoff
10005	(12.0020.00)	- electromagnet Volt: 12
9th speed 1/min:		- Cooti omagnet vote. 12
7 THE TABLE 17 MILES	7	

Del. quantity cm3/: 25.00...35.00 1000s.: (25.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

## Shutoff electromagnet:

Cut-in

: 10.0 min voltage : 12.0 Rated voltage

## Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.2...1.6 mm: 2.3 mm: 38.7...40.7 mm: 41.5...48.5 KF MS SVS max.

Ya Yb

:

Remarks:

J03

Note inst. in remarks column

Test scheet : VWW Edition : 01.07.92 replaces : 16.01.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R328 : 0 460 494 239 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 086-1.61 LLK

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 750

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 26.50...27.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000S.: (3.0)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/

1000s.: 2.00...3.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525 Charge press hPa: 750

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	ecteristic:	+		
1st speed 1/min:	2250	†	Delivery-quant. and	breakaway char.:
	750	T		
TD travel mm:	6.106.90	T	1nd speed 1/min:	000
	(5.807.20)	Ι	Charge-air pressure	
electromagnet Volt:		Ι	point hPa:	-2611 lud
2nd speed 1/min:	1800	Ι	LDA-stroke mm:	
	750	I	Shutoff	3.5
	4.805.60	1	electromagnet Volt:	12
	(4.505.90)	1	Del. quantity cm3/:	
Shutoff		1	10005	(30.0036.00)
electromagnet Volt:	12	1	2nd speed 1/min:	
3rd speed 1/min:		1	Charge press. hPa:	
	750	1	Shutoff	
	3.804.20	+	electromagnet Volt:	12
mm:	(3.304.70)	+	Del. quantity cm3/:	
Shutoff		+	1000s.:	(0.006.00)
electromagnet Volt:		+	5th speed 1/min:	2525
4th speed 1/min:		+	Charge press. hPa:	750
	750	+	Shutoff	
	1.802.60	+	electromagnet Volt:	12
	(1.502.90)	+	Del. quantity cm3/:	
Shutoff		+		(11.0019.00)
electromagnet volt:	12	+	8th speed 1/min:	
		+	Charge press. hPa:	750
Supply-pump pressur	c characteristic:	+	Shutoff	
4	700	+	electromagnet Volt:	12
1st speed 1/min:		+	Del. quantity cm3/:	26.5036.50
Charge press. hPa:	750	+		(25.5037.50)
Supply-pump	7 70 7 00	+	9th speed 1/min:	
	3.303.90	+	Charge press. hPa:	750
Shutoff	13	+	Shutoff	40
electromagnet Volt:		+	electromagnet Volt:	
2nd speed 1/min:		†	Del. quantity cm3/:	36.3038.30
Charge press. hPa:	750	†	10005.:	(35.1039.50)
Supply-pump bane	5.606.20	Ť	12th speed 1/min:	
pressure bar: Shutoff	3.000.20	Ť	Charge press. hPa: Shutoff	700
electromagnet Volt:	12	T		10
3rd speed 1/min:	2250	Ι	electromagnet Volt: Del. quyntity cm3/:	
Charge press. hPa:		Ι		(40.3044.70)
Supply—pump	150	Ι	18th speed 1/min:	
	7.708.30	1	Shutoff	700
Shutoff		1	electromagnet Volt:	12
electromagnet Volt:	12	1	Del. quantity cm3/:	
- 100 t. 5ag. 10 t 0 t 0 t	Y 66	1		(34.0030.00)
Overlow quantity at	overflow valve:	1	20th speed 1/min:	
		1	Charge press. hPa:	
1st speed 1/min:	700	+	Shutoff	( )
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:		+	Del. quantity cm3/:	
Overflow :	41.7083.40	+		(32.5038.50)
quantity cm3/10s:	(27.8097.30)	+	21th speed 1/min:	
2nd speed 1/min:		+	Shutoff	
Charge press. hPa:	750	+	electromagnet Volt:	12
Shutoff		+	Del. quantity cm3/:	25.0030.00
electromagnet Volt:		+	1000s.:	(22.5032.50)
	55.60139.00	+		
quantity cm3/10s:	(41.70152.90)	+	Mech. shutoff:	

Electr. shutoff:

1st speed 1/min: 425

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Damper set gty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1st speed 1/min: 425

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 9.00...11.00 1000s.: (4.50...15.50) Dispersion cm3/: 2.5

1000s.: (3.0)

High Idle:

1st speed 1/mi: 525

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 9.00...11.00

1000s.: (5.00...15.00)

Residual:

1.Rotacao 1/min: 550

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.00...3.00

1**000**s.: (-0.50...5.50)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.50...4.50

1000s.: (0.00...7.00)

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00

1000s.: (35.00...85.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00

1000s.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: K1

MS mm: 1.1...1.5 mm: 20.0...22.0 XK mm: 9.9...13.3 XL

Remarks:

Operate control lever after each manifold-pressure compensator pressure

change.

\* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : FIA Edition : 02.07.92 replaces : 19.07.89 Calibrating oil : ISO-4113 Injection pump : VE4/9F2100R343 Type number : 0 460 494 246 Customer Part-No. : Customer-specific information Customer : FIAT-AUTO : M710 DT 19 D Engine TEST BENCH REQUIREMENTS Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder assembly : 1 688 901 022 Opening | bar: 130.00...133.00 Pressure Test inj. tubing : motornah Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450 Injection pump setting values Test specifications in parentheses Timing-device travel 1/min: 800 Speed Charge press. hPa: 1000 Setting value mm: 1.50...1.90 AFB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Supply-pump pressure

1/min: 800

Charge press hPa: 1000

KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: Speed 1/min: 1500 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 52.00...53.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5) Full-load del. w/out charge press.: 1/min: 600 Speed Del. quantity cm3/ 1000s.: 40.00...41.00 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Low-idle speed regulation 1/min: 400 Speed Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5) Residual-Delivery Setting 1/min: 700 Speed Del. quantity cm3/ 1000s.: 4.00...6.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load speed regulation Speed 1/min: 2300 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 30.00...36.00 KSB/AFB Volt: 12 valve

Setting value bar: 3.20...3.80

Speed

Shutott	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
•	+ Shutoff
Start:	electromagnet Volt: 12
	6th speed 1/min: 1500
Speed 1/min: 100	Charge press. hPa: 1000
Del. quantity cm3/: 55.0085.00	
	+ TD travel mm: 5.306.10
mind 1000s.: 55.00	mm: (5.006.40)
KSB/AFB	+ KSB/AFB
Valve Volt: 12	+ valve Volt: 12
Shutoff	→ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	8th speed 1/min: 1000
Load-dependent start of delivery:	Charge press. hPa: 1000
Inj.—qty.dif.measurement:	+ TD travel mm: 2.505.50
ing. quy.unr.measurement.	
0ma-al	mm: (2.505.50)
Speed 1/min: 800	+ Shutoff
Inj.—qty. cm3/	+ electromagnet Volt: 12
difference 1000s.: 10.0018.00*	+ 9th speed 1/min: 500
KSB/AFB	+ Charge press. hPa: 1000
valve Volt: 12	+ TD travel mm: 3.204.80
Shutoff	mm: (2.505.50)
electromagnet Volt: 12	Shutoff
TD-travel dif.measurement	1
	+ electromagnet Volt: 12
correttore anticipo iniezione (SV)	<b>†</b>
1.Speed 1/min: 800	+ Supply-pump pressure characteristic:
TD-travel	+
difference mm: 0.700.90*	+ 1st speed 1/min: 2100
KSB/AFB	+ Charge press. hPa: 1000
valve Volt: 12	+ Supply-pump
Shutoff	
electromagnet Volt: 12	+ KSB/AFB
SP press.—dif.measurement	+ valve Volt: 12
pompa di mandata (FP)	+ Shutoff
1.Speed 1/min: 800	+ electromagnet Volt: 12
Supply pump	+ 2nd speed 1/min: 1500
pressure	+ Charge press. hPa: 1000
difference bar: 0.100.30#	+ Supply-pump
KSB/AFB	+ pressure bar: 5.305.90
valve Volt: 12	
	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	+ Shutoff
	+ electromagnet Volt: 12
Inspection-pump test specifications	+ 3rd speed 1/min: 800
Test specifications in parentheses	+ Charge press. hPa: 1000
•	+ Supply-pump
Timing-device characteristic:	+ pressure bar: 3.203.80
Timing device character istre.	KSB/AFB
2nd speed 1/min: 2100	
	+ valve Volt: 12
Charge press hPa: 1000	+ Shutoff
TD travel mm: 8.209.00	+ electromagnet Volt: 12
mm: (7.909.30)	+
KSB/AFB	Overlow quantity at overflow valve:
valve Volt: 12	To the desirence of the contract of
Shutoff	1st speed 1/min: 800
electromagnet Volt: 12	
	Charge press. hPa: 1000
3rd speed 1/min: 800	+ KSB/AFB
Charge press hPa: 1000	+ valve Volt: 12
TD travel mm: 1.501.90	+ Shutoff
mm: (1.202.20)	+ electromagnet Volt: 12

0 61 14 70 07 10	
Overflow : 41.7083.40	+ Shutoff
quantity cm3/10s: (41.7083.40)	+ electromagnet Volt: 12
2nd speed 1/min: 2100	+ Del. quantity cm3/: 55.5058.50
Charge press. hPa: 1000	+ 1000s.: -
KSB/AFB	12th speed 1/min: 1500
valve Volt: 12	Charge press. hPa: 1000
Shutoff	KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Overflow : 55.60139.00	+ Shutoff
quantity cm3/10s: (55.60139.00)	+ electromagnet Volt: 12
	+ Del. quyntity cm3/: 52.0053.00
Delivery-quant. and breakaway char.:	1000s.: (50.5054.50)
•	18th speed 1/min: 600
	+ KSB/AFB
1nd speed 1/min: 800	- valve Volt: 12
Charge-air pressure-setting	+ Shutoff
point hPa: 400	
LDA-stroke mm: 6.2	+ electromagnet Volt: 12
KSB/AFB	+ Del. quantity cm3/: 40.0041.00
	10005.: (38.0043.00)
valve Volt: 12	+ 20th speed 1/min: 800
Shutoff	+ KSB/AFB
electromagnet Volt: 12	† valve Volt: 12
Del. quantity cm3/: 43.5044.50	+ Shutoff
1000s.: (41.5046.50)	+ electromagnet Volt: 12
2nd speed 1/min: 2450	<pre>Del. quantity cm3/: 37.0039.00</pre>
Charge press. hPa: 1000	+ 1000s.: (35.5040.50)
KSB/AFB	1
valve Voit: 12	+ Mech. shutoff:
Shutoff	
electromagnet Volt: 12	Flectr. shutoff:
Del. quantity cm3/: 12.0020.00	Leccii. Silatori.
1000s.: (11.0021.00)	1st speed 1/min: 100
3rd speed 1/min: 2658	1 1st speed 1/min: 400
	+ Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000s.: (0.003.00)
KSB/AFB	+ KSB/AFB
valve Volt: 12	† valve Volt: 12
Shutoff	+
electromagnet Volt: 12	† Damper set qty.:
Del. quantity cm3/: 0.007.00	+
1000s.: -	+ LFG-setting:
5th speed 1/min: 2300	+ solidale con carcassa:
Charge press. hPa: 1000	+ Idle delivery:
KSB/ĀFB	1
valve Volt: 12	
	+ 1st speed 1/min: 400
Shutott	1st speed 1/min: 400
Shutoff electromagnet Volt: 12	+ KSB/AFB
electromagnet Volt: 12	+ KSB/AFB + valve Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	+ KSB/AFB + valve Volt: 12 + Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000s.: (29.0037.00)	+ KSB/AFB + valve Volt: 12 - Shutoff + electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000s.: (29.0037.00) 9th speed 1/min: 2100	<pre>KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00</pre>
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	+ KSB/AFB + valve Volt: 12 - Shutoff + electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 9th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00 1000s.: (9.5016.50)
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	<pre>KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00</pre>
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00 1000s.: (9.5016.50)  Residual:
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00 1000S.: (9.5016.50)  Residual: 1.Rotacao 1/min: 700
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000S.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000S.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB valve Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000S.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000S.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB valve Volt: 12  Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000s.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB valve Volt: 12  Shutoff electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	KSB/AFB  valve Volt: 12  Shutoff electromagnet Volt: 12  Del. quantity cm3/: 11.0015.00  1000S.: (9.5016.50)  Residual:  1.Rotacao 1/min: 700  KSB/AFB valve Volt: 12  Shutoff

2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...9.50 1000s.: -Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 800 1st speed Inj.-qty. cm3/ : 8.00...10.00# difference 1000s .: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 1/min: 800 3rd speed cm3/: 10.00..18.00\* Inj.-qty. difference 1000s.: (10.00...18.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 800 : 0.70...0.90\* TD-travel TD-travel : 0.70...0.90\* difference mm: (0.70...0.90) KSB/AFB Volt: 12 valve Shutoff electromagnet Voit: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 800 Supply pumppressure : 0.10...0.30# difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 220 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...83.00 1000s.: (57.00...83.00) 1/min: 300 2nd speed KSB/AFB Volt: 12 valve

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...52.50 1000s.: (37.50...52.50) 1/min: 100 4th speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.0...1.4 mm: 37.2...39.2 mm: 37.5...43.5 KF MS Ya Yb Remarks: Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Adjustment of potentiometer at control L ever Prerequisite: pump set Speed-control lever in idle position Apply d.c. voltage 3.5...3.9 V to connection 1 (positive) and connection 3 (ground). Turn potentiometer until a voltage of 3.07...3.13 V is indicated between connection 2 (positive) and connection 3 (ground). If potentiometer is set\_correctly, the voltage must drop to 1.0...1.4 V in

max. control lever position.

\* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : RFN

Edition : 02.07.92 replaces : 10.05.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R345 Type number : 0 460 494 248

Customer Part-No. :

Customer-specific information

Customer : RNUR

Engine : J8S - 742

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400 Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Voit: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...100.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	+	Shutoff	
2	2000	+	electromagnet Volt:	12
2nd speed 1/min:		+	Overflow :	41.7083.40
	800	+	quantity cm3/10s:	
TD travel mm:		+	2nd speed 1/min:	
	(6.207.00)	+	Charge press. hPa:	800
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
3rd speed 1/min:		+	Overflow :	
	800	+	quantity cm3/10s:	(55.60139.00)
TD travel mm:		- -		
	(3.504.90)	+	Delivery-quant. and	breakaway char .:
Shutoff		+	·	,
electromagnet Volt:		+		
4th speed 1/min:	1000	+	1nd speed 1/min:	700
Charge press hPa:	800	+	Charge-air pressure	-settina
TD travel mm:	1.902.70	+	point hPa:	
mm:	(1.603.00)	+	LDA-stroke mm:	
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
6th speed 1/min:		+	Del. quantity cm3/:	
Charge press. hPa:		1		(38.5044.50)
TD travel mm:	5.706.50	1	3rd speed 1/min:	
mm.	(5.406.80)	1	Charge press. hPa:	
Shutoff	(5.450.00)		Shutoff	000
electromagnet Volt:	12	I	electromagnet Volt:	12
9th speed 1/min:		1	Del. quantity cm3/:	
Charge press. hPa:		Ι	10000	(2.5017.50)
TD travel mm:		T	5th speed 1/min:	
mm.	(1.203.60)	T.		
KSB/AFB	(1.205.00)	T	Charge press. hPa: Shutoff	000
valve Volt:	12	Ť		10
Shutoff	16	Ť	electromagnet Volt:	17 00 00 00
	10	T	Del. quantity cm3/:	
electromagnet Volt:	12	†		(22.0030.00)
Cimply and an analysis		+	8th speed 1/min:	
Supply-pump pressure	e characteristic:	†	Charge press. hPa:	800
1	400	†	Shutoff	40
1st speed 1/min:		†	electromagnet Volt:	12
Charge press. hPa:	800	+	Del. quantity cm3/:	
Subbra-bamb	2 (2 7 22	+		(0.003.00)
	2.603.20	+	9th speed 1/min:	
Shutoff	40	+	Charge press. hPa:	800
electromagnet Volt:	12	+	Shutoff	
2nd speed 1/min:		+	electromagnet Volt:	
Charge press. hPa:	800	+	Del. quantity cm3/:	43.4045.40
Supply-pump		+	1000\$.:	(42.1046.70)
	5.105.70	+	12th speed 1/min:	1400
Shutoff		+	Charge press. hPa:	800
electromagnet Volt:		+	Shutoff	
3rd speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	800	+	Del. quyntity cm3/:	47.0048.00
Supply-pump		+		(45.2049.80)
pressure bar:	6.907.50	+	18th speed 1/min:	600
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
_		+	Del. quantity cm3/:	
Overlow quantity at	overflow valve:	+	1000s.:	(34.5040.50)
		1	20th speed 1/min:	
1st speed 1/min:	600	+	Charge press. hPa:	
		+	. J	-
		,		

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 44.90...47.90

1000s.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1/min: 425 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.00...9.00

1000s.: (3.00...11.00)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.50...9.50 1000S.: (3.50...11.50)

Residual:

1/min: 500 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.00...6.00

1000s.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...100.00

1000s.: (40.00...100.00)

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000S.: (20.00...40.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...100.00

1000s.: (60.00...100.00)

min voltage

Shutoff electromagnet:

Cut-in

: 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 Κ KF mm: 5.6...6.0 MS mm: 1.3...1.7

SVS max. mm: 3.6

mm: 38.8...42.8 Ya mm: 36.5...45.9

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : REN

Edition : 02.07.92 : 10.05.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R345-1 Type number : 0 460 494 249

Customer Part-No. :

Customer-specific information

Customer : RNUR

Engine : J8S - 742

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically: 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1400 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500

Del. quantity cm3/ 1000S.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed hPa: 800 Charge press

Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...100.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

liming-device chara	cteristic:	+	Shutoff	
		+	electromagnet Volt:	
2nd speed 1/min:		+	Overflow :	41.7083.40
Charge press hPa:	800	+	quantity cm3/10s:	(41.7083.40)
TD travel mm:	6.207.00	+	2nd speed 1/min:	
mm :	(6.207.00)	1	Charge press. hPa:	
Shutoff	(0.201.00)	T	Shutoff	800
	12	T		42
electromagnet Volt:		+	electromagnet Volt:	
3rd speed 1/min:		+		55.60139.00
Charge press hPa:	800	+	quantity cm3/10s:	(55.60139.00)
TD travel mm:	4.004.40	1	•	
mm:	(3.504.90)	1	Delivery-quant. and	breakaway chan .
Shutoff	(3.33 1.70)	1	vectively quarter and	bicanaway chai
electromagnet Volt:	12	T		
		T	4 - 1 - 1 4 1 .	300
4th speed 1/min:		+	1nd speed 1/min:	
Charge press hPa:		+	Charge-air pressure	-setting
TD travel mm:	1.902.70	+	point hPa:	200
	(1.603.00)	+	LDA-stroke mm:	
Shutoff		1	Shutoff	
electromagnet Volt:	12	1		10
		T	electromagnet Volt:	
6th speed 1/min:		+	Del. quantity cm3/:	
Charge press. hPa:		+		(38.5044.50)
TD travel mm:	5.706.50	+	3rd speed 1/min:	2500
mm:	(5.406.80)	+	Charge press. hPa:	800
Shutoff		1	Shutoff	
electromagnet Volt:	12	i		12
		T	electromagnet Volt:	
9th speed 1/min:		†	Del. quantity cm3/:	2.5017.50
Charge press. hPa:		+		(2.5017.50)
TD travel mm:		+	5th speed 1/min:	2400
mm:	(1.203.60)	+	Charge press. hPa:	800
KSB/AFB		+	Shutoff	
valve Volt:	12	$\perp$	electromagnet Volt:	12
Shutoff	12		Dol grantity and/	27 00 20 00
	10	T	Del. quantity cm3/:	23.0029.00
electromagnet Volt:	12	+		(22.0030.00)
		+	8th speed 1/min:	
Supply-pump pressure	e characteristic:	+	Charge press. hPa:	800
		+	Shutoff	
1st speed 1/min:	600	+	electromagnet Volt:	12
Charge press. hPa:		1	Del. quantity cm3/:	
Supply-pump				(0.003.00)
pressure bar:	2 40 7 20	T	Ohb annual 1/min.	2000
	2.003.20	+	9th speed 1/min:	
Shutoff		+	Charge press. hPa:	800
electromagnet Volt:		+	Shutoff	
2nd speed 1/min:	1400	T		13
Charge press. hPa:	. 100	T	electromagnet Volt:	16
Supply-pump		I	electromagnet Volt: Del. quantity cm3/:	
		I	Del. quantity cm3/:	43.4045.40
	800	+	Del. quantity cm3/: 1000s.:	43.4045.40 (42.1046.70)
pressure bar:		T + +	Del. quantity cm3/: 1000s.: 12th speed 1/min:	43.4045.40 (42.1046.70) 1400
pressure bar: Shutoff	800 5.105.70	+++++	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa:	43.4045.40 (42.1046.70) 1400
pressure bar: Shutoff electromagnet Volt:	<ul><li>800</li><li>5.105.70</li><li>12</li></ul>	T + + + + + + + + + + + + + + + + + + +	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff	43.4045.40 (42.1046.70) 1400 800
pressure bar: Shutoff	<ul><li>800</li><li>5.105.70</li><li>12</li></ul>	T + + + + + + + + + + + + + + + + + + +	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff	43.4045.40 (42.1046.70) 1400 800
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min:	800 5.105.70 12 2000		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	43.4045.40 (42.1046.70) 1400 800
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa:	800 5.105.70 12 2000	T+++++++++++++++++++++++++++++++++++++	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply—pump	800 5.105.70 12 2000 800		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	800 5.105.70 12 2000	T+++++++++++++++++++++++++++++++++++++	Del. quantity cm3/: 1000S.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000S.: 18th speed 1/min:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff	800 5.105.70 12 2000 800 6.907.50		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	800 5.105.70 12 2000 800 6.907.50	<del></del>	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff electromagnet Volt:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt:	800 5.105.70 12 2000 800 6.907.50 12		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600 12 37.0038.00
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt:	800 5.105.70 12 2000 800 6.907.50 12		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600 12 37.0038.00
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff	800 5.105.70 12 2000 800 6.907.50 12	<del></del>	Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600 12 37.0038.00 (34.5040.50)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at	800 5.105.70 12 2000 800 6.907.50 12 overflow valve:		Del. quantity cm3/: 1000S.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000S.: 18th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 20th speed 1/min:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600 12 37.0038.00 (34.5040.50) 1000
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt:	800 5.105.70 12 2000 800 6.907.50 12 overflow valve:		Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quyntity cm3/: 1000s.: 18th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	43.4045.40 (42.1046.70) 1400 800 12 47.0048.00 (45.2049.80) 600 12 37.0038.00 (34.5040.50) 1000

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 44.90...47.90

1000s.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1/min: 425 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.00...9.00 1000S.: (3.00...11.00)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.50...9.50 1000s.: (3.50...11.50)

Residual:

1.Rotacao 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.00...6.00

1000s.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...100.00

1000s.: (40.00...100.00)

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...40.00

1000s.: (20.00...40.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...100.00

1000s.: (60.00...100.00)

min voltage

Shutoff electromagnet:

: 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

Cut-in

mm: 3.2...3.4 KF mm: 5.6...6.0 MS mm: 1.3...1.7

SVS max. mm: 3.6 mm: 5.5 LDA stroke

mm: 38.8...42.8 Ya Yh mm: 36.5...45.9

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : 07.07.92 Edition replaces : 10.12.91 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R410 Type number : 0 460 494 272

Customer-specific information Customer : FIAT-AUTO

Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temo.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800

Charge press hPa: 1000 Setting value bar: 3.20...3.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 46.00...47.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 33.50...34.50

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 15.00...19.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700

Del. quantity cm3/ 1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000

Del. quantity cm3/	+ Shutoff
1000s.: 30.0036.00	+ electromagnet Volt: 12
KSB/AFB	+ 4th speed 1/min: 1500
valve Volt: 12	+ Charge press hPa: 1000
Shutoff	+ TD travel mm: 5.806.60
electromagnet Volt: 12	mm: (5.506.90)
Charle	+ KSB/AFB
Start:	t valve Volt: 12
Speed 1/min: 100	+ Shutoff
Del. quantity cm3/: 50.0080.00	+ electromagnet Volt: 12
mind 1000s.: 50.00	+ 5th speed 1/min: 2100
KSB/AFB	+ Charge press. hPa: 1000 + TD travel mm: 8.609.40
Valve Volt: 12	mm: (8.309.70)
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
	+ Shutoff
Load-dependent start of delivery:	+ electromagnet Volt: 12
<pre>Injqty.dif.measurement:</pre>	+
	+ Supply-pump pressure characteristic:
Speed 1/min: 800	
Injqty. cm3/	+ 1st speed 1/min: 2100
difference 1000s.: -10.0018.00#	+ Charge press. hPa: 1000
KSB/AFB	+ Supply-pump
valve Volt: 12	pressure bar: 7.007.60
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
TD-travel dif.measurement	Shutoff
correttore anticipo iniezione (SV)	electromagnet Volt: 12
1.Speed 1/min: 800 TD-travel	2nd speed 1/min: 1500
difference mm: -0.700.90#	Charge press. hPa: 1000
KSB/AFB	+ Supply-pump + pressure bar: 5.305.90
valve Volt: 12	+ pressure bar: 5.305.90 + KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
a coot anagree to ce. The	electromagnet Volt: 12
Inspection—pump test specifications	3rd speed 1/min: 800
Test specifications in parentheses	Charge press. hPa: 1000
	- Supply-pump
Timing-device characteristic:	+ pressure bar: 3.203.80
	+ KSB/AFB
1st speed 1/min: 500	+ valve Volt: 12
Charge press hPa: 1000	+ Shutoff
TD travel mm: 3.204.80 A	+ electromagnet Volt: 12
mm: (2.505.50)	†
electromagnet Volt: 12	+ Overlow quantity at overflow valve:
2nd speed 1/min: 800	1 44
Charge press hPa: 1000 TD travel mm: 1.802.20	1st speed 1/min: 800
TD travel mm: 1.802.20 mm: (1.502.50)	+ Charge press. hPa: 1000
KSB/AFB	+ KSB/AFB + valve Volt: 12
valve Volt: 12	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Overflow : 41.7083.40
3rd speed 1/min: 1000	quantity cm3/10s: (41.7083.40)
Charge press hPa: 1000	+ 2nd speed 1/min: 2100
TD travel mm: 2.505.50 B	+ Charge press. hPa: 1000
mm: (2.505.50)	+ KSB/AFB
	+ valve Volt: 12
	1

Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Overflow : 55.60139.00	+ Shutoff
quantity cm3/10s: (55.60139.00)	electromagnet Volt: 12
·	Del. quantity cm3/: 46.0049.00
Delivery-quant. and breakaway char.:	1000s.: -
Terrory quarter and of cartainay ariation	8th speed 1/min: 800
·	
1nd annot 1/min. 000	KSB/AFB
1nd speed 1/min: 900	valve Volt: 12
Charge-air pressure-setting -	Shutoff
point hPa: 450	electromagnet Volt: 12
LDA-stroke mm: 6.6	Del. quantity cm3/: 32.0034.00
KSB/AFB	1000s.: -
valve Volt: 12	- 9th speed 1/min: 600
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm3/: 40.00,41.00	Shutoff
1000s.: (38.0043.00)	
2nd speed 1/min: 2650 -	electromagnet Volt: 12
	Del. quantity cm3/: 33.5034.50
Charge press. hPa: 1000	1000s.: (31.5036.50)
KSB/AFB	
valve Volt: 12	Mech. shutoff:
Shutoff -	
electromagnet Volt: 12	Electr. shutoff:
Del. quantity cm3/: 0.007.00	
1000s.: -	1st speed 1/min: 400
3rd speed 1/min: 2450	Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000c - (0.00 7.00)
KSB/AFB	1000\$.: (0.003.00)
	KSB/AFB
valve Volt: 12	L valve Vol+• 17
	- valve Volt: 12
Shutoff	valve volt. 12
Shutoff electromagnet Volt: 12	- Damper set qty.:
Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00)	Damper set qty.:
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00)	- Damper set qty.: - LFG-setting:
Shutoff electromagnet Volt: 12 Det. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300	- Damper set qty.: - LFG-setting: - solidale con carcassa:
Shutoff electromagnet Volt: 12 Det. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000	- Damper set qty.: - LFG-setting:
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00)	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00)	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50)
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5)
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.0048.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.0048.00 1000S.: (44.0049.00)	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50 1000s.: -
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000s.: (13.5020.50) Dispersion cm3/: 2.5 1000s.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50 1000S.: -  Residual:
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.0048.00 1000S.: (44.0049.00) 6th speed 1/min: 1500 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.0047.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50 1000S.: -  Residual:  1.Rotacao 1/min: 700
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50 1000S.: -  Residual:  1.Rotacao 1/min: 700 KSB/AFB
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00 1000S.: (11.0021.00) 4th speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0036.00 1000S.: (29.0037.00) 5th speed 1/min: 2100 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.0048.00 1000S.: (44.0049.00) 6th speed 1/min: 1500 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.0047.00	Damper set qty.:  LFG-setting: solidale con carcassa: Idle delivery:  1st speed 1/min: 400 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.0019.00 1000S.: (13.5020.50) Dispersion cm3/: 2.5 1000S.: (2.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50 1000S.: -  Residual:  1.Rotacao 1/min: 700

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 4.00...6.00

1000s.: (3.00...7.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 800

Inj.—qty. cm3/ : 8.00...10.00'

difference 1000s.: -

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 800

Inj.-qty. cm3/: 10.00..18.00# difference 1000s.: (10.00...18.00)

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 800

TD-travel : 0.70...0.90# difference mm: (0.70...0.90)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP): 1st speed 1/min: 800

Supply pump-

: 0.10...0.301 pressure

difference bar: -

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220

KSB/AFB

valve Voit: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00)

1/min: 300 2nd speed

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 32.50...47.50 1000s.: (32.50...47.50)

1/min: 100 4th speed

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 5.6...6.0 mm: 3.2...3.4 mm: 1.0...1.4 KF MS

LDA stroke mm: 6.6

mm: 37.2...39.2 Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet : VWW

Edition : 03.07.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R433 Type number : 0 460 494 286

Customer Part-No.:

Customer-specific information

Customer

Engine

: 1,9 L WK UD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 000

Openina

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Charge press. hPa: 750 Setting value mm: 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250

Charge press. hPa: 750

Del. quantity cm3/

1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 Dispersion

cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/ 1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Charge press hPa: 750

Del. quantity cm3/ 1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 37.00...43.00

1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 12

cm3/ Ini.-aty.

difference 1000S.: -7.00...11.00\*

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed Charge press. hPa: 750 TD-travel Shutoff difference mm: -1.90...2.10\* electromagnet Volt: 12 Shutoff : 55.60...139.00 electromagnet Volt: 12 quantity cm3/10s: (41.70...152.90) Inspection-pump test specifications Delivery-quant. and breakaway char .: Test specifications in parentheses 2nd speed 1/min: 2750 Charge press. hPa: 750 Timing-device characteristic: 2nd speed 1/min: 2100 Shutoff hPa: 750 Charge press electromagnet Volt: 12 TD travel mm: 8.00...8.60 Del. quantity cm3/: 0.00...6.00 mm: (7.50...9.10) 1000s.: (0.00...6.00) Shutoff 1/min: 2600 5th speed electromagnet Volt: 12 Charge press. hPa: 750 1/min: 1250 Shutoff 3rd speed Charge press hPa: 750 TD travel mm: 4.30...4.50 mm: (3.60...5.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press. hPa: 750 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 32.50...42.50
1000S.: (31.50...43.50)
9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff Charge press hPa: 750 TD travel mm: 1.50...2.10 mm: (1.00...2.60) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 40.90...42.90 1000s.: (39.70...44.10) 1/min: 750 1st speed Charge press. hPa: 750 12th speed 1/min: 1250 Supply-pump Charge press. hPa: 750 bar: 4.30...4.90 Shutoff pressure electromagnet Volt: 12
Del. quyntity cm3/: 49.30...50.30
1000S.: (47.60...52.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 750 16th speed 1/min: 600 Supply-pump Charge press. hPa: pressure bar: 5.40...6.00 Shutoff electromagnet volt: 12
Del. quantity cm3/: 37.50...40.50
1000H.: (36.00...42.00)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff Shutoff electromagnet Volt: 12 1/min: 2100 3rd speed Charge press. hPa: 750 Supply-pump bar: 7.40...8.00 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.60...45.60 electromagnet Volt: 12 1000s.: (41.90...46.30) Overlow quantity at overflow valve: 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.50...45.50) 1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 Mech. shutoff: cm3/10s: (27.80...97.30) quantity 2nd speed 1/min: 2100 Electr. shutoff:

1st speed 1/min Del. quantity cm3/ 1000s.: Damper set qty.: LFG-setting:		Shutoff electromagnet 3rd speed TD-travel difference Shutoff electromagnet	1/min: : mm:	1250 -2.502.90# -
solidate con carcas Idle delivery:	ssa:	SP pressdif pompa di manda 1st speed	ata (F	P):
1st speed 1/min: Shutoff electromagnet Volt:	: 12	- Supply pump-	:	-0.100.30'
Dispersion cm3/:	: (13.0021.00) : 2.0	- Shutoff - electromagnet - 3rd speed		
1000S.: High Idle:	(3.0)			-1.001.40# -(0.801.60)
1st speed 1/mi: Shutoff	-	Shutoff electromagnet	Volt:	12
electromagnet Volt: Del. quantity cm3/:		- Automatic star - 1st speed 1	_	fuel delivery:
Residual:	(13.6621.66)	<ul><li>Shutoff</li><li>electromagnet</li></ul>	Volt:	12
1.Rotacao 1/min: Shutoff	550	- Del. quantity - 10 -	cm3/: 100s.:	35.0055.00 (35.0055.00)
electromagnet Volt: Det. quantity cm3/: 1000S.:	12 7.008.00 (5.509.50)	- 2nd speed 1 - Shutoff - electromagnet		
Load-dependent star Injqty.dif.measur	t of delivery:	- Del. quantity	cm3/:	31.0051.00 (31.0051.00)
1st speed 1/min:	1250	- 3rd speed 1 - Shutoff		
Inj.—qty. cm3/: difference 1000s.: Shutoff	-	<ul> <li>electromagnet</li> <li>Del. quantity</li> <li>10</li> </ul>	cm3/:	37.0043.00 (32.5047.50)
electromagnet Volt: 3rd speed 1/min: Injqty. cm3/: difference 1000S.:	1250 -7.011.0*	- - Shutoff electr - Cut-in	omagne	et:
Shutoff electromagnet Volt: 5th speed 1/min:	12	min voltage Rated voltage		10.0 12.0
Inj.—qty. cm3/: difference 1000s.:	+0.003.00#	- Mounting and a	ssembl	ly dimensions:
Shutoff electromagnet Volt:	12	- Designation - K - KF		3.63.8 K-OT
TD-travel dif.measu correttore anticipo 1st speed 1/min: TD-travel :	iniezione (SV):	MS Ya Yb	mm: mm:	1.11.5 37.641.6 50.463.3
difference mm:	1	Remarks:	:	

Note inst. in remarks column

Test scheet : VWW : 03.07.92 Edition : ISO-4113 Calibrating oil

Injection pump : VE4/9F2300R479 Type number : 0 460 494 321

Customer Part-No. :

Customer-specific information

Customer : VW

Engine : 1,9 UD f. B4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temo.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 750

mm: 4.30...4.50 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600 Charge press hPa: 750 Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 37.00...43.00

1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -7.00...11.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250 Charge press. hPa: 750 TD-travel Shutoff difference mm: -1.90...2.10# electromagnet Volt: 12 Shutoff : 55.60...139.00 Overflow electromagnet Volt: 12 cm3/10s: (41.70...152.90) quantity Inspection pump test specifications Delivery-quant, and breakaway char .: Test specifications in parentheses Timing-device characteristic: 2nd speed 1/min: 2750 Charge press. hPa: 750 Shutoff 2nd speed 1/min: 2100 Charge press hPa: 750 electromagnet Volt: 12 TD travel mm: 8.00...8.60 Del. quantity cm3/: 0.00...6.00 mm: (7.50...9.10) 1000s.: (0.00...6.00) Shutoff 5τh speed 1/min: 2600 electromagnet Volt: 12 Charge press. hPa: 750 1/min: 1250 Shutoff 3rd speed Charge press hPa: 750 electromagnet Volt: 12 Del. quantity cm3/: 9.00...13.00 1000S.: (7.00...15.00) 8th speed 1/min: 2400 Charge press. hPa: 750 mm: 4.30...4.50 TD travel mm: (3.60...5.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Shutoff Charge press hPa: 750 electromagnet Volt: 12 Del. quantity cm3/: 32.50...42.50 TD travel mm: 1.50...2.10 1000s.: (31.50...43.50) mm: (1.00...2.60) Shutoff 9th speed 1/min: 2100 electromagnet Volt: 12 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.90...42.90 1000s.: (39.70...44.10) Supply-pump pressure characteristic: 1st speed 1/min: 750 Charge press. hPa: 750 1/min: 1250 12th speed Supply-pump Charge press. hPa: 750 pressure bar: 4.30...4.90 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 49.30...50.30 electromagnet Volt: 12 1/min: 1250 1000s.: (47.60...52.00) 2nd speed Charge press. hPa: 750 16th speed 1/min: 600 Supply-pump Shutoff electromagnet volt: 12
Del. quantity cm3/: 37.50...40.50
1000H.: (36.00...42.00)
20th speed 1/min: 700 pressure bar: 5.40...6.00 Shutoff electromagnet Volt: 12 1/min: 2100 3rd speed Charge press. hPa: 750 Charge press. hPa: 750 Supply-pump Shutoff pressure bar: 7.40...8.00 electromagnet Volt: 12 Shutoff Del. quantity cm3/: 42.60...45.60 1000s.: (41.10...47.10) electromagnet Volt: 12 1/min: 450 21th speed Overlow quantity at overflow valve: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1/min: 700 1st speed 1000s.: (34.50...45.50) Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Mech. shutoff: : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) quantity Electr. shutoff: 2nd speed 1/min: 2100

1st speed 1/min: 450 Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1000s.: (0.00...3.00) TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Idle delivery: TD-travel : -1.90...2.10# Damper set gty.: difference mm: -Shutoff 2nd speed 1/min: 1000 electromagnet Volt: 12 Shutoff 1/min: 1250 3rd speed electromagnet Volt: 12 : -2.50...2.90' TD-travel Del. quantity cm3/: 17.00...19.00 1000s.: (14.00...22.00) difference mm: -(2.10...3.30)Shutoff electromagnet Volt: 12 LFG-setting: solidale con carcassa: Idle delivery: SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 1/min: 450 1st speed Supply pump-Shutoff pressure : -0.10...0.30\* electromagnet Volt: 12 Del. quantity cm3/: 16.00...18.00 difference. bar: -Shutoff 1000S.: (13.00...21.00) cm3/: 2.0 electromagnet Volt: 12 Dispersion 3rd speed 1/min: 1250 1000s.: (3.0) Supply pump-: -1.00...1.40 pressure High Idle: bar: -(0.80...1.60) difference Shutoff 1st speed 1/mi: 550 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. Del. quantity cm3/: 16.00...18.00 terza fermo della portata 1000s.: (13.00...21.00) stop (EGR set) scarico) (ARF) Residual: gaz d'échappement-ARF) Spacing mm: 12.0 1.Rotacao 1/min: 550 Shutoff 1/min: 1000 1st speed electromagnet Volt: 12 Del. quantity cm3/: 7.00...8.00 Charge press. hPa: 750 Shutoff 1000s.: (5.50...9.50) electromagnet Volt: 12 Del. quantity cm3/: 27.00...29.00 Load-dependent start of delivery: 1000s.: (24.00...32.00) Inj.-qty.dif.measurement: Automatic starting fuel delivery: 1st speed 1/min: 1250 Inj.-qty. cm3/ : -4.50...6.50\* difference 1000s.: -1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 1000s.: (35.00...55.00) Inj.-qty. cm3/: -7.0...11.0# difference 1000s.: -(5.00...13.00) 2nd speed 1/min: 380 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.00...51.00 1000s.: (31.00...51.00) electromagnet Volt: 12 5th speed 1/min: 1250 cm3/: +0.00...3.00' Inj.-qty. difference 1000S .: -

3rd speed

1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000S.: (32.50...47.50)

### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

# Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: K-OT mm: 1.0...1.4 mm: 37.6...41.6 mm: 50.1...63.3 MS Ya Yb

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : VWW

Edition : 06.07.92 Calibrating oil : ISO-4113

: VE4/9F2300R479-4 Injection pump Type number : 0 460 494 322

Customer Part-No. :

Customer-specific information

Customer

Engine

: 1,9 UD f. 84/AU

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1250 Charge press. hPa: 750

Setting value mm: 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed Del. quantity cm3/

1000s.: 15.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Speed Charge press hPa: 750

Del. quantity cm3/

1000s.: 9.00...13.00

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 37.00...43.00 mind 1000S.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

cm3/Inj.-qty.

difference 1000s.: -7.00...11.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

difference	TD-travel	1250	†	Charge press. nPa: Shutoff	750
Shutoff   Shut		-1 on 2 10+	Ī		12
Supply-pump pressure characteristic:   quantity cm3/i0s: (41.70152.90		1.702.10^	Ι	Overflow:	55 60 139 00
Inspection-pump test specifications Test specifications in parentheses  Timing-device characteristic:  2nd speed 1/min: 2100 Charge press hPa: 750 Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (3.705.10) Shutoff electromagnet volt: 12 The travel mm: (1.502.10 The travel mm: (1.502.10 The travel mm: (1.102.50) Shutoff electromagnet volt: 12 Supply-pump pressure characteristic:  1st speed 1/min: 750 Charge press. hPa: 750 Shutoff electromagnet volt: 12 2rd speed 1/min: 250 Charge press. hPa: 750 Shutoff electromagnet volt: 12 2rd speed 1/min: 250 Charge press. hPa: 750 Shutoff electromagnet volt: 12 2rd speed 1/min: 250 Charge press. hPa: 750 Supply-pump pressure bar: 4.304.90 Shutoff electromagnet volt: 12 2rd speed 1/min: 250 Charge press. hPa: 750 Supply-pump pressure bar: 5.406.00 Shutoff electromagnet volt: 12 The lequantity m3/: 40.9042.90 The pressure bar: 5.406.00 Shutoff electromagnet volt: 12 The lequantity m3/: 40.9042.90 The pressure bar: 5.406.00 Shutoff electromagnet volt: 12 The lequantity m3/: 40.9042.90 The pressure bar: 5.406.00 Shutoff electromagnet volt: 12 The lequantity m3/: 40.9042.90 The pressure bar: 5.406.00 The pressure bar: 5.406.00 Shutoff electromagnet volt: 12 The lequantity m3/: 37.5040.50 The pressure bar: 5.406.00 The press		12	I		
Test specifications in parentheses  Timing-device characteristic:  2nd speed 1/min: 2100 Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 1250 Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 1250 Charge press hPa: 750 Shutoff Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 2400 Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 750 Charge press hPa: 750 TD travel mm: 1.502.10 Shutoff electromagnet volt: 12 Ath speed 1/min: 750 Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 750 Charge press hPa: 750 Shutoff electromagnet volt: 12 Ath speed 1/min: 2400 Charge press hPa: 750 Shutoff electromagnet volt: 12 Charge press hPa: 750 Shutoff electromagnet volt: 12 Supply-pump pressure characteristic:  1st speed 1/min: 250 Charge press hPa: 750 Supply-pump Shutoff electromagnet volt: 12 electromagnet volt: 12 Del. quantity cm3/: 32.5042.50  1000S.: (33.5042.50  1000S.: (34.5042.50  1000S.: (34	ecce. anagree voce.		1	quarterly emp 105.	(41.703156.70
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2nd speed   1/min: 2100	Timing-device chara	cteristic:	+		
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mm: (7.609.00)			+		
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Supply-pump pressure characteristic:   Supply-pump pressure bar: 4.304.90   Shutoff		(7.609.00)	†		
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TD travel mm: 4.304.50 mm: (3.705.10)  Shutoff electromagnet Volt: 12 this speed 1/min: 2400  Charge press hPa: 750  TD travel mm: (1.502.10 mm: (1.102.50)  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 32.5042.50  TD travel mm: 1.502.10 mm: (1.102.50)  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 32.5042.50  Supply-pump pressure characteristic: belectromagnet Volt: 12 bel. quantity cm3/: 32.5042.50  Supply-pump pressure characteristic: belectromagnet Volt: 12 bel. quantity cm3/: 40.9042.90  1st speed 1/min: 750 tharge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 49.3050.30  Shutoff electromagnet volt: 12 bel. quantity cm3/: 42.6045.60  Charge press. hPa: 750  Supply-pump pressure bar: 7.408.00  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 42.6045.60  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 42.6045.60  1000s.: (31.5043.50)  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 37.0043.00  Charge press. hPa: 750  Shutoff electromagnet Volt: 12 bel. quantity cm3/: 42.6045.50)			T		12
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4th speed         1/min: 750           Charge press         hPa: 750           TD travel         mm: 1.502.10           mm: (1.102.50)         1000S.: (31.5043.50)           Shutoff         9th speed 1/min: 2100           electromagnet Volt: 12         2th speed 1/min: 2100           Supply-pump pressure characteristic:         2th speed 1/min: 2100           1st speed 1/min: 750         1000S.: (39.7044.10)           1st speed 1/min: 750         1000S.: (39.7044.10)           1st speed 1/min: 750         1000S.: (39.7044.10)           1st speed 1/min: 750         12th speed 1/min: 1250           1st speed 1/min: 1250         12th speed 1/min: 1250           1st speed 1/min: 1250         12th speed 1/min: 2100           1st speed 1/min: 1250         1000S.: (47.6052.00)           1st speed 1/min: 1250         16th speed 1/min: 600           1st speed 1/min: 2100         16th speed 1/min: 600           1st speed 1/min: 2100         2th speed 1/min: 700           1st speed 1/min: 2100         2th speed 1/min: 700           1st speed 1/min: 2100         2th speed 1/min: 450           2st speed 1/min: 700         2th speed 1/min: 450           2st speed 1/min: 700         2th speed 1/min: 450           2st speed 1/min: 700         2th speed 1		12	I		
Charge press hPa: 750 TD travel mm: 1.502.10			1	Shutoff	7 30
TD travel mm: 1.502.10 mm: (1.102.50)  Shutoff electromagnet Volt: 12			1		12
Miniter   Mini	TD travel mm:	1.502.10	1	Del quantity cm3/:	32 50 42 50
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Supply-pump pressure characteristic:  Supply-pump pressure characteristic:  1		12	1		
Supply-pump pressure characteristic:  1			+		
Del. quantity cm3/: 40.9042.90   1000s.: (39.7044.10)   1000s.: (39.7044.10)   1250   12th speed 1/min: 1250   1000s.: (47.6052.00)   16th speed 1/min: 600   1000s.: (36.0042.00)   16th speed 1/min: 600   1000s.: (47.6052.00)	Supply-pump pressur	e characteristic:	+		12
1st speed 1/min: 750 1charge press. hPa: 750 1supply-pump			+	Del. quantity cm3/:	40.9042.90
Supply-pump pressure bar: 4.304.90	1st speed 1/min:	750	+	1000s.:	(39.7044.10)
pressure         bar: 4.304.90         Shutoff         electromagnet Volt: 12         pel. quyntity cm3/: 49.3050.30         pel. quyntity cm3/: 37.504050         pel. quyntity cm3/: 49.30504550         pel. quyntity cm3/: 49.304550         pel. quyntity cm3/: 49.304550         pel. quyntity cm3/: 49.304550         pel. quyntity cm3/: 49.304560<	Charge press. hPa:	750	+		
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Supply-pump pressure bar: 5.406.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 Charge press. hPa: 750 Supply-pump pressure bar: 7.408.00 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.6045.60 1000s.: (41.1047.10) 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 1000s.: (34.5045.50) Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (27.8097.30) Electr. shutoff:			+		
pressure bar: 5.406.00		750	†		600
Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 Charge press. hPa: 750 Supply-pump pressure bar: 7.408.00 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12  Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.5040.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0045.60  1000S.: (41.1047.10) 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 1000S.: (34.5045.50) Mech. shutoff:  Mech. shutoff:  Mech. shutoff:	Subbra-brimic	F (0 ( 00	†		40
1000H.: (36.0042.00)   3rd speed 1/min: 2100   20th speed 1/min: 700   Charge press. hPa: 750   Shutoff   electromagnet Volt: 12   1000S.: (41.1047.10)   21th speed 1/min: 450   Shutoff   electromagnet Volt: 12   21th speed 1/min: 450   Shutoff   electromagnet Volt: 12   21th speed 1/min: 450   Shutoff   electromagnet Volt: 12   Del. quantity cm3/: 37.0043.00   Charge press. hPa: 750   Shutoff   electromagnet Volt: 12   Del. quantity cm3/: 37.0043.00   1000S.: (34.5045.50)   Mech. shutoff:   Mech. shutoff:   Electr. shutof		5.406.00	†		
3rd speed 1/min: 2100 Charge press. hPa: 750 Supply-pump pressure bar: 7.408.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12  1000s.: (41.1047.10) 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00  1000s.: (34.5045.50) Mech. shutoff:  Mech. shutoff:  Mech. shutoff:		10	†		
Charge press. hPa: 750 Supply-pump pressure bar: 7.408.00 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.6045.60 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00  Mech. shutoff:  Mech. shutoff:  Mech. shutoff:  Mech. shutoff:			Ť		
Supply-pump pressure bar: 7.408.00			T		
pressure bar: 7.408.00		7 30	Ι		100
Shutoff electromagnet Volt: 12  Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (27.8097.30)  Del. quantity cm3/: 42.6045.60 1000s.: (41.1047.10) 21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00  Amount to the speed 1/min: 450 Shutoff Electromagnet Volt: 12  Mech. shutoff: Electr. shutoff:		7 /0 8 00	Ī		12
1000s.: (41.1047.10)   21th speed 1/min: 450   21	•	7.460.00	Ι		
Overlow quantity at overflow valve:  1st speed 1/min: 700 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (27.8097.30)  21th speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 1000S.: (34.5045.50)  Mech. shutoff: Electr. shutoff:		12	1		
Overlow quantity at overflow valve:  1st speed 1/min: 700	ceect anagher vocc.		1		
1st speed 1/min: 700	Overlow quantity at	overflow valve:	1		-+20
1st speed 1/min: 700	over con quarterly at	over resir vacve.	1		12
Charge press. hPa: 750	1st speed 1/min:	700	1	Del. quantity cm3/:	37.0043.00
Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (27.8097.30)  Hech. shutoff: Electr. shutoff:			1		
electromagnet Volt: 12			+		
Overflow : 41.7083.40 + Electr. shutoff:		12	+	Mech. shutoff:	
quantity $cm3/10s$ : (27.8097.30) $+$ Electr. shutoff:			+		
2nd speed 1/min: 2100 +	quantity cm3/10s:	(27.8097.30)	+	Electr. shutoff:	
	2nd speed 1/min:	2100	+		

1/min: 450 1st speed : -1.90...2.10\* TD-travel Del. quantity cm3/: 0.00...3.00 Shutoff 1600s.: (0.00...3.00) electromagnet Volt: 12 3rd speed 1/min: 1250 : -2.50...2.90# mm: -(2.30...3.10) Idle delivery: TD-travel difference Shutoff Damper sat qty.: electromagnet Volt: 12 1/min: 1000 2nd speed SP press.—dif.measurement: pompa di mandata (FP): Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...19.00 1000s.: (14.00...22.03) 1st speed 1/min: 1250 Supply pumppressure : -0.10...0.30' difference bar: -LFG-setting: Shutoff solidale con carcassa: Idle delivery: Supply pump-1st speed 1/min: 450 pressure : -1.00...1.40# Shutoff difference bar: -(0.80...1.60) electromagnet Volt: 12
Del. quantity cm3/: 16.00...18.00
1000S.: (13.00...21.00)
Dispersion cm3/: 2.0 Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. terza fermo della portata 1000s.: (3.0) stop (EGR set) High Idle: scarico) (ARF) gaz d'échappement-ARF) 1st speed 1/mi: 500 Spacing mm: 12.0 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.00...18.00 1000s.: (13.00...21.00) 1st speed 1/min: 1000 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 27.00...29.00 1000s.: (24.00...32.00) Residual: 1.Rotacao 1/min: 550 Shutoff Automatic starting fuel delivery: electromagnet Volt: 12 Del. quantity cm3/: 7.00...8.00 1st speed 1/min: 180 1000s.: (5.50...9.50) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Inj.-qty. cm3/: -4.50...6.50' difference 1000s.: -1/min: 380 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.00...51.00 1000s.: (31.00...51.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 cm3/: +0.00...3.00# Inj.-qty. 3rd speed 1/min: 100 difference 1000s.: -Shutoff electromagnet Volt: 12
Del. quantity cm3/: 37.00...43.00
1000S.: (32.50...47.50) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Shutoff electromagnet:

Cut-in

min voltage : 12.0 Rated voltage : 10.0

# Mounting and assembly dimensions:

Designation

K mm: 1.6...1.8 KF mm: K-OT MS mm: 1.0...1.4 Ya mm: 37.6...41.6 Yb mm: 50.4...63.3

### Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : OPE

Edition : 02.07.92 Calibrating oil : ISO-4113

Injection pump : VE4/9F2500R341 : 9 460 620 003 Type number

Customer-specific information Customer : ISUZU

Engine : 4EC1-BADT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 700 Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 700

Setting value bar: 3.80...4.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 700 Del. quantity cm3/

1000s.: 46.90...47.90

Shutoff

electromagnet Volt: 12 Dispersion cm3/: -1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600 Del. quantity cm3/

1000s.: 33.80...37.80

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 8.50...12.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 425 Charge press hPa: 700

Del. quantity cm3/ 1000s.: 19.60...25.60

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 38.00...70.00 mind 1000s.: 38.00

mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed hPa: 700 Charge press

Inj.-qty. cm3/

difference 1000s.: 16.00...24.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1250

Charge press hPa: 700

TD-travel		t	2nd speed 1/min:	
	1.401.60	╁	Charge press. hPa:	700
Shutoff	•	+	Shutoff	
electromagnet Volt:	12 -	+	electromagnet Volt:	12
	•	┢	Overflow:	94.50139.00
Inspection-pump tes	t specifications -	1	quantity cm3/10s:	(94.50139.00)
Test specifications		1	,	
		1	Delivery-quant. and	breakayay chan
Timing-device chara	cteristic:		betively quarter and	ar curtainay criat th
		1		
1st speed 1/min:	620	1	1nd speed 1/min:	1000
Charge press hPa:			Charge-air pressure	
	0.301.10	Ĺ	point hPa:	
	(0.001.40)	T	Shutoff	J:10
electromagnet Volt:		T		12
and mond 1/min	1250	T	electromagnet Volt:	
2nd speed 1/min:		1	Del. quantity cm3/:	
Charge press hPa:		†		(41.3046.30)
	2.803.20	†	2nd speed 1/min:	
	(2.303.76)	†	Charge press. hPa:	700
Shutoff	•	t	Shutoff	
electromagnet Volt:	12 -	+	electromagnet Volt:	
3rd speed 1/min:	2000 -	-	Del. quantity cm3/:	0.0015.00
Charge press hPa:	700 -	+	1000s.:	(0.0015.00)
TD travel mm:	5.606.40	+	3rd speed 1/min:	
	(5.306.70)	1	Charge press. hPa:	
Shutoff		1	Shutoff	7 3 3
electromagnet Volt:	12	1	electromagnet Volt:	12
4th speed 1/min:	2250	1	Del. quantity cm3/:	10 40 25 40
Charge press hPa:		Г	1000c	(18.6026.60)
The tracket		T	/+b	(10.00(0.00)
	6.607.40	T	4th speed 1/min:	
mn:	(6.307.70)	†	Charge press. hPa:	700
O		†	Shutoff	4.0
Supply-pump pressure	e characteristica -	t	electromagnet Volt:	
		t	Del. quantity cm3/:	
1st speed 1/min:		t		(26.1034.10)
Charge press. hPa:	700 -	╀	5th speed 1/min:	2500
Supply-pump	-	-	Charge press. hPa:	700
pressure bar:	2.202.80	+	Shutoff	
Shutoff	-	-	electromagnet Volt:	12
electromagnet Volt:	12 -	-	Del. quantity cm3/:	34,10,37,10
2nd speed 1/min:	1250	L	10005	(33.3037.90)
Charge press. hPa:			6th speed 1/min:	2300
Supply-pump	. 55	Ĺ	Charge press. hPa:	
	2.804.40		Shutoff	700
Shutoff	2.004.40	T		12
	12	Γ	electromagnet Volt:	
electromagnet Volt:	2250	T	Del. quantity cm3/:	
3rd speed 1/min:		t		(43.8048.20)
Charge press. hPa:	- 700	<b>†</b>	7th speed 1/min:	
Supply-pump		t	Charge press. hPa:	700
	6.206.80	<b>†</b>	Shutoff	
Shutoff	and the second s	+	electromagnet Volt:	12
electromagnet Volt:	12	-	Del. quantity cm3/:	44.3047.30
		-	1000s.:	(43.8047.80)
Overlow quantity at	overflow valve:	-	8th speed 1/min:	
,		1	Charge press. hPa:	
1st speed 1/min:	600	_	Shutoff	
Shutoff		L	electromagnet Volt:	12
electromagnet Volt:	12	L	Del. quantity cm3/:	
Overflow :	75.00119.50	L		
		T		(45.1049.70)
quantity cm3/10s:	(13.00(17.50)	T	9th speed 1/min:	1000

K06

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.60...38.60 1000s.: (34.10...39.10) 10th speed 1/min: 1300 Charge press. hPa: 700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.10...49.10 1000s.: (45.60...49.60) 11th speed 1/min: 600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.80...37.80 1000s.: (32.80...38.80) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: 700 Inj. qty. cm3/ : 16.00...24.00 difference 1000s.: (16.00...24.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: 700 TD-travel : 1.40...1.60 difference mm: (1.40...1.60)

1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...57.50 1000s.: (42.50...57.50) 1/min: 100 4th speed Shucoff electromagnet Volt: 12 Del. quantity cm3/: 38.00...70.00 1000s.: (38.00...70.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.75 mm - Part No. ...343,...344

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

# Note inst. in remarks column

Test scheet : OPE Edition : 07.07.92 : 18.07.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/10F2300R365 Type number : 9 460 620 004

Customer-specific information Customer : ISUZU

Engine : 4 EE1-TC

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection-pump setting values Test specifications in parentheses

### Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 1000 Setting value mm: 2.90...3.30

Shutoff

electromagnet Volt: 12

#### Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000 Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 52.50...53.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: -1000s.: (2.5)

## Low-idle speed regulation

Speed 1/min: 415 Del. quantity cm3/

1000s.: 9.50...13.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

## Full-load speed regulation

1/min: 2600 Speed Charge press hPa: 1000 Del. quantity cm3/

1000s.: 18.40...24.40

Shutoff

electromagnet Volt: 12

#### Start:

1/min: 100 Speed

Del. quantity cm3/: 44.00...76.00 mind 1000s.: 44.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

# Timing-device characteristic:

1st speed 1/min: 600 Charge press hPa: 1000

TD travel mm: 0.30...1.10 mm: (0.00...1.40)

electromagnet Volt: 12 1/min: 1250 2nd speed Charge press hPa: 1000

TD travel mm: 2.90...3.30

mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 2000 Charge press hPa: 1000

TD travel mm: 5.80...6.60

mm: (5.50...6.90)

Shutoff	+ Del. quantity cm3/: 18.4024.40
electromagnet Volt: 12	10005.: (16.9025.90)
4th speed 1/min: 2250	+ 4th speed 1/min: 2400
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 6.807.60	+ Shutoff
mm: (6.507.90)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 41.0049.00
electromagnet Volt: 12	† 1000s.: (40.0050.00)
	+ 5th speed 1/min: 2300
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000
	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 49.5052.50
Supply-pump	1000s.: (48.7053.30)
pressure bar: 2.102.70	+ 6th speed 1/min: 2200
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1250	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 50.0053.00
Supply-pump	+ 1000s.: (49.2053.80)
pressure bar: 3.904.50	7th speed 1/min: 1250
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 2250	+ Del. quantity cm3/: 31.7035.70
Charge press. hPa: 1000	10008.: (31.2036.20)
Supply-pump	+ 8th speed 1/min: 1250
pressure bar: 6.507.10	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 52.5053.50
Overlow quantity at overflow valve:	+ 1000s.: (50.7055.30)
•	+ 9th speed 1/min: 550
2nd speed 1/min: 1250	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 34.7038.70
electromagnet Volt: 12	1000s.: (33.7039.70)
Overflow : 83.40127.80	+
quantity cm3/10s: (83.40127.80)	+ Mech. shutoff:
	+
Delivery-quant. and breakaway char.:	+ Electr. shutoff:
•	+
	+ 1st speed 1/min: 415
1nd speed 1/min: 1000	Del. quantity cm3/: 0.003.00
Charge-air pressure-setting	1000s.: (0.003.00)
point hPa: 410	+
Shutoff	+ Idle delivery:
electromagnet Volt: 12	+
Del. quantity cm3/: 47.8048.80	1st speed 1/min: 415
1000s.: (45.8050.80)	+ Shutoff
2nd speed 1/min: 2750	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 9.5013.50
Shutoff	1000s.: (7.5015.50)
electromagnet Volt: 12	+ Dispersion cm3/: 2.5
Del. quantity cm3/: 0.005.00	10008.: (3.0)
1000s.: (0.005.00)	2nd speed 1/min: 550
3rd speed 1/min: 2600	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 0.005.00
electromagnet Volt: 12	10008.: (0.005.00)
<del>-</del>	+
	•

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: 1000 Inj.-qty. cm3/ : 16.00...24.00 difference 1000S.: (16.00...24.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: 1000 TD-travel : 0.70...0.90 difference mm: (0.60...1.00) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...52.50 1000s.: (37.50...52.50) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 44.00...76.00 1000s.: (44.00...76.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: mm: 0.8...1.0 Overflow restriction 0.75 mm - Part No. ..343,..344

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 466 099 Injection pump Pump designation : PES6A75D410/3RS136G EP type number : 0 410 476 976 Governor Governor design. : RSV325...1150A8C494-4L : 0 420 232 572 Soverner no. Customer-spec. information Customer : KHD Engine : F6L912 1st version kW : 74.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rom: 1150 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 5.1...5.2 100 s: (5.0...5.4) Spread cm3 : 0.2100 s: (0.4) 2nd speed rpm : 325.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/ : 1.0...1.6 100 s: (0.8...1.7) cm3 : 0.2Spread 100 s: (0.3) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 : 51.5...52.5 Speed Del.quantity 1000 : (50.0...54.0) Spread : 2.50 cm3 1000 : (4.00) RATED SPEED 1st version Control Lever position degrees: 102...110 Testina: 1st rack travel in: 10.10 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1225...1255 Speed

3rd rack travel in: 4.00

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 1.90...2.00

: (1.85...2.05)

Speed rpm : 1235...1265 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 6.7 Testing: Speed rpia : 100 Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 7.10...7.30 Rack travel in mm : 2.00 Speed וחסרו : 435...495 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.10...11.20 od speed rpm : 750 2nd speed Rack travel in m: 12.30...12.50 3rd speed rpm : 950 Rack travel in m: 11.60...11.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 55.0...57.0 1000 s: (53.0...59.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.10 Speed rpm : 1190...1200 STARTING FUEL DELIVERY Speed rom : 100 Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0)

Rack travel in mm : 19.50...21.00

Remarks:

**APPLICATION** 

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-6-5-4-3-2 Note remarks Test sheet : KHD Phasing : 0-75-120-195-240-315 Edition : 31.07.92 Replaces Tolerance + - 6 : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 400 646 271AA BASIC SETTING Injection pump Pump designation: PE6A95D410LS2621 1st speed rpm: 1250 EP type number : 0 410 696 982 Governor Rack travel in mm : 9.20...9.30 Governor design. : RQV300...1250AB1195L Governer no. : 0 420 212 172 Del.quantity cm3/: 8.1...8.3 Customer-spec. information 100 s: (7.9...8.5) Customer : KHD Spread cm3 : 0.3Engine : F6L413F 100 s: (0.6) 1st version kW : 120.0 Rated speed : 2500 rpm : 300.02nd speed Rack travel in mm: 6.4...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9) Test oil Spread cm3 : 0.3inlet temp. "C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Test nozzle holder travel mm : 1.20...1.30 assembly : 0 681 343 009 2nd speed rpm : 500 2.60...2.90 travel mm Openina 3rd speed rpm : 1000 pressure, bar : 172...175 : 5.40...5.60 travel mm rpm : 1300 4th speed : 7.70...7.80 travel mm Test lines : 1 680 750 014 rpm : 1380 5th speed travel mm : 8.50...8.80 Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x2.00x600 Control-Lever position Degree: -1 (A) Injection pump setting values rpm : 1250 Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 rpm : 1250 Speed : 81.0...83.0 Del.quantity Prestroke mm : 2.00...2.10 1000 : (79.0...85.0) : (1.95...2.15) Spread cm3 : 3.50

1000 : (6.00)

Rack travel in mm : 9.00...12.00

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 8.20

rpm : 1290...1300 Speed

2nd rack travel in: 4.50

Speed rpm : 1345...1375 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 80...88

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

rpm : 375...485 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.20...9.30

2nd speed

nd speed rpm : 650 Rack travel in m: 9.70...9.80

3rd speed rpm : 850

Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 76.5...79.5

1000 s: (74.0...82.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.40...14.80

Remarks:

K14

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : KHD 9,6 i 2 Test sheet Edition : 26.06.92 Replaces : 03.90 Test oil : ISO-4113 Combination no. : 0 400 646 275 Injection pump Pump designation: PE6A95D410L52621 EP type number : 0 410 696 982 Governor Governor design. : RQ300/1250AB1148-1L : 0 420 200 104 Governer no. Customer-spec. information Customer : KHD Engine : F6L413F 1st version kW : 141.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Phasing : 0-75-120-195-240-315 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1250Rack travel in mm : 10.60...10.70 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.8...1.4 100 s: (0.5...1.6) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm: 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Del.quantity : 96.5...98.5 1000 : (94.5...100.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Setting point: : 600 ripm Rack travel in mm: 20.0 Testing: 1st rack travel in: 9.60 Speed rpm : 1295...1310 2nd rack travel in: 4.00 rpm : 1325...1355 Speed

Firing order

: 1-6- 5- 4- 3- 2

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.00...2.10

: (1.95...2.15)

LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 7.90 Speed rpm : 300 Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 Speed rpm : 340...380 TORQUE CONTROL Dimension a mm : 0.17 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.60...10.70 2nd speed rpm : 600 Rack travel in m: 11.10...11.20 3rd speed rrom : 915 Rack travel in m: 11.10...11.20 4th speed rpm : 980 Rack travel in m: 10.60...10.80 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 95.0...98.0 1000 s: (92.5...100.5) RACK STOP ADJUSTMENT Speed rpm : 650 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 Speed rpm : 1295...1310 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 15.30...15.60 Remarks: : KLEOPATRA

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 646 275AA

Injection bumb

Pump designation : PE6A95D41OLS2621 : 0 410 696 982

EP type number Governor

Governor design. : RQ300/1250AB1148-1L

Governer no. : 0 420 200 104

Customer-spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 136.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm: 9.00...12.00

Firing order : 1-6- 5- 4- 3- 2

: 0-75-120-195-240-315 Phasing

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 93.0...95.0

1000 : (91.0...97.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.10

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

Speed rpm : 1330...1360

**K17** 

LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00 Speed rpm : 340...380 TORQUE CONTROL Dimension a mm : 0.17 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.10...10.20 2nd speed rpm : 650 Rack travel in m: 10.60...10.70 3rd speed rpm : 915 Rack travel in m: 10.30...10.50 4th speed rpm : 980 Rack travel in m: 10.00...10.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650
Del.quantity cm3/: 92.0...95.0
1000 s: (89.5...97.5) RACK STOP ADJUSTMENT Speed rpm : 650 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 Speed rpm : 1295...1310 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 646 275AB

Injection pump

Pump designation : PE6A95D41OLS2621

EP type number

: 0 410 696 982

Governor

Governor design: RQ300/1250AB1148-1L

Governer no.

: 0 420 200 104

Customer

Customer-spec. information : KHD

Engine

: F6L413F

1st version kW

Rated speed

: 122.0

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

**Opening** 

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

K19

Firing order

: 1-6-5-4-3-2

Phasina

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250

: 83.0...85.0 1000 : (81.0...87.0)

Spread

Del.quantity

: 3.50

cm3 1000 : (6.00)

RATED SPEED

1st version

Speed

Speed

Setting point:

Speed

rpm : 600

Rack travel in mm: 20.0

Testing:

1st rack travel in: 8.30

rpm : 1295...1310

2nd rack travel in: 4.00

rpm : 1325...1355

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm: 2.00

rom : 340...380 Speed

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 915

Rack travel in m: 9.50...9.70

4th speed rpm : 980

Rack travel in m: 9.20...9.50

START CUT-OUT

1/min: 220 (240) Speed

RACK STOP ADJUSTMENT

Speed rom : 650

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30

rpm : 1295...1310 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 15,8 n1 Edition : 7.8.92 : 19.10.90 Replaces Test oil : ISO-4113 Combination no. : 0 400 649 219 Injection bump Pump designation : PE10A950610/4LS2589 EP type number : 0 410 699 994 Governor Governor design. : RQV300...1150AB1047D : 0 420 214 242 Governer no. Customer-spec, information Customer : KHD Engine : F10L413 FW 1st version kW : 170.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 : 1-10-9-4- 3- 6-5-8-7-2 Firing order Phasing : 0-27-72-99-144-171-216-243-288-315 Tolerance + - ° : 0.50 (0.75) Time to cyt. no. : 1 BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 9.60...9.70 Del.quantity cm3/ : 7.5...7.7 100 s: (7.3...7.9) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Spread cm3 : 0.5100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.60 travel mm rpm : 390 : 2.20...2.60 2nd speed travel mm 3rd speed rpm : 1195 : 8.70...9.10 travel mm rpm : 1245 4th speed : 9.40...9.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1170 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 : 75.0...77.0 Del.quantity 1000 : (73.0...79.0) Spread cm3 : 3.50

1000 : (6.00)

Prestroke mm

Test pressure, bar: 25...27

: 1.50...1.60

: (1.45...1.65)

RATED SPEED

1st version

Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 8.60

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 67...75

Testing:

Speed : 200 man.

Minimum rack trave: 8.40 rpm : 300 Speed

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rom : **300...**420 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.60...9.70

rpm : 500 2nd speed

Rack travel in m: 10.60...10.70

3rd speed rpm : 880

Rack travel in m: 10.30...10.50

4th speed rpm : 990

Rack travel in m: 9.90...10.10

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 800 rom

Del.quantity cm3/: 80.5...83.5

1000 s: (78.0...86.0)

: 100 rom

Del.quantity cm3/: 65.0...70.0 1000 s: (62.5...72.5)

RACK STOP ADJUSTMENT

Speed rpm : 500 **BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,

the start position must be reached.

When accelerating from engine speed "O", no voltage in starting solenoid.

2. Set fuel delivery in fuel-delivery

characteristics with stop above the

governor housing.

**APPLICATION** 

Below-ground operation

Note remarks

Test sheet : KHD

Edition : 24.07.92

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AA

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

L

Governer no. : 0 420 232 310

Customer-spec. information

Customer

Engine : F6L413F

1st version kW : 134.0

Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: 2.00...2.10 : (1.95...2.15) Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1325

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 9.2...9.4

100 s: (9.0...9.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1325

Del.quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Setting point:

Speed rpm : 800

Rack travel in mm: 1.0

Testing: 1st rack travel in: 8.80 Speed rom : 1365...1375 2nd rack travel in: 4.00 rpm : 1390...1420 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 21...29 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 ripn: : 520...580 ripm : 700 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1325 Rack travel in m: 9.80...9.90 2nd speed rom : 650 Rack travel in m: 9.80...10.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.80 Speed rpm : 1365...1375 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40 LOW IDLE Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) cm3 : 3.00Spread 1000 s: (5.00) Remarks:

Note remarks

Test sheet : KHD Edition : 24.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AB

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

: 0 420 232 310 Governer no.

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 141.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm2 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE FOSITION Control-Lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 മ്പ്

1000 : (6.00)

RATED SPEED

Spread

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 9.40

rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1310...1340 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.5 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 520...580 rpm : 700 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.40...10.50 2nd speed rpm : 650 Rack travel in m: 10.90...11.00 3rd speed rpm : 850 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 95.0...98.0 1000 s: (92.5...100.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 Speed rpm : 1290...1300 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity\_cm3/ : 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.001000 s: (5.00)

Remarks:

K26

LOW IDLE

Speed

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 149AC

Injection : To

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information

Customer

Engine

: F6L413F

1st version kW

: 134.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening.

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00,...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.2...9.4

100 s: (9.0...9.6)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250

Del.quantity

: 92.0...94.0 1000 : (90.0...96.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testina:

1st rack travel in: 9.10 Speed rpm : 1290...1300 2nd rack travel in: 4.00

rpm : 1305...1335 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300

Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 520...580 : 700 Speed mon

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

rom : 1250 1st speed

Rack travel in m: 10.10...10.20

rpm : 650 2nd speed

Rack travel in m: 10.60...10.70

3rd speed rpm : 850

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 650 rpm

Del.quantity cm3/: 90.5...93.5

1000 s: (88.0...96.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 9.10

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

K28

Note remarks

Test sheet

: KHD Edition : 24.07.92

Replaces Test oil

: ISO-4113

Combination no.

: 0 400 676 149AD

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design. : RSV300...1325A8c1002

Governer no.

: 0 420 232 310

Customer-spec. information : KHD

Customer

Engine

: F6L413F

1st version kW

: 130.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.80

Speed

rpm : 1290...1300

2nd rack travel in: 4.00

L01

rpm : 1305...1335 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 rpm : 520...580 Speed

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250 Rack travel in m: 9.80...9.90

2nd speed rpm : 650

Rack travel in m: 10.30...10.40 3rd speed rpm : 850

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm: 14.00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Dec.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.00

1000 s: (5.00)

Remarks:

**L05** 

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AE

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8c1002

Governer no.

: 0 420 232 310

Customer-spec, information

Customer

: KHD

Engine

: F6L413F

1st version

: 127.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

kW

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Testing:

Speed

rpm : 1290...1300

Phasing : 0-75-120-195-240-315

: 1-6-5-4-3-2

Tolerance + - ° : 0.50 (0.75)

Rack travel in mm : 9.00...12.00

Time to cyl. no. : 1

BASIC SETTING

Firing order

1st speed

rpm: 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension Click setting x :: ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

87.0...89.0 Del.quantity 1000 : (85.0...91.0)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: ?

rom : 1300...1330 Sceed 4th rack travel in: 1600

Speed rom : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 rpm : 520...580 Speed Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250 Rack travel in m: 9.60...9.70

2nd speed rpm : 650 Rack travel in m: 10.10...10.20

3rd speed npm : 850

Rack travel in m: 9.70...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm: 14.00...14.40

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.00

1000 s: (5.00)

Remarks:

L04

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AF

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

: RSV300...1325A8c1002 Governor design.

: 0 420 232 310 Governer no.

Customer-spec. information Customer

: KHD

: F6L413F Engine

1st version kW : 123.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall-thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Fhasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: ?

Testing:

1st rack travel in: 8.40

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 Speed rpm: 520...580 Speed rpm: 700 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.40...9.50 2nd speed rpm : 650 Rack travel in m: 9.90...10.00 3rd speed rpm : 850 Rack travel in m: 9.50...9.70 FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 650 Del.quantity cm3/ : 79.5...82.5 1000 s: (77.0...85.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.40 Speed rpm : 1290...1300

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

L06

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 149AG

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

: 127.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Speed

Rack travel in mm : 9.60...9.70

rpm: 1325

Del.quantity cm3/: 8.7...8.9

Rack travel in mm : 9.00...12.00

Tolerance  $+ - \circ : 0.50 (0.75)$ 

Time to cyl. no. : 1

Firing order : 1-6-5-4-3-2

: 0-75-120-195-240-315

100 s: (8.5...9.1)

Spread

Spread

BASIC SETTING

1st speed

Phasing

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

Governor spring pre-tension

Click setting x : ?

1st version

Speed

rpm : 1325

: 87.0...89.0 Del.quantity 1000 : (85.0...91.0)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: ?

Testing:

1st rack travel in: 8.60

rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1300...1530 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 21...29 Setting point w/out bumper spring rpm : 300Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 : 520...580 Speed rom Speed rpm : 700 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.60...9.70 rpm : 650 2nd speed Rack travel in m: 10.10...10.20 3rd speed rpm : 850 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version : 650 Speed rpm Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.60 Speed rpm : 1290...1300 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 14.00...14.40

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.00 1000 s: (5.00)

Remarks:

L08

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Note remarks

Test sheet

: KHD : 24.07.92 Edition

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AH

Injection pump

Pump designation : PE6A950410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: O 420 232 310

Customer

Customer-spec. information : KHD

Engine

: F6L413F

1st version kW

: 119.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - \*

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1200

Rack travel in mm : 9.10...9.20

Del.quantity cm3/: 8.0...8.2

100 s: (7.8...8.4)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1200

Del.quantity

: 80.0...82.0 1000 : (78.0...84.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.10

Speed

rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 Speed rpm : 520...580 Speed rpm : 700

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.10...9.20

2nd speed rpm : 650

Rack travel in m: 9.60...9.70

3rd speed rpm : 850

Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 74.5...77.5 1000 s: (72.0...80.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.10

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

**Speed** rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.00 1000 s: (5.00) Spread

Remarks:

L10

Note remarks

Test sheet : KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AI

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no. : 0 420 232 310

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 134.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 96.0...98.0 Del.quantity 1000 : (94.0...100.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: ?

Testing:

1st rack travel in: 9.40

rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1220...1250 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point wout bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 300 Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00

Speed : 520...580 COM

: 700 Speed mqn Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.40...10.50

2nd speed rpm : 650

Rack travel in m: 10.90...11.00

3rd speed rpm : 850

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 94.5...97.5 1000 s: (92.0...100.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rom : 1190...1200

STARTING FUEL DELIVERY

rom : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

L12

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AJ

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

: 0 420 232 310 Governer no.

Customer—spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 124.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina .

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - \* : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.80

Speed rpm : 1190...1200

rpm : 1215...1245 Speed 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 520...580

Speed rom : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.80...9.90

rpm : 650 2nd speed

Rack travel in m: 10.30...10.40

3rd speed rpm : 850

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 82.5...85.5 1000 s: (80.0...88.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.80

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

L14

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2 Note remarks Test sheet : KHO Edition : 31.07.92 Phasing : 0-75-120-195-240-315 Replaces Test oil : ISO-4113 Tolerance + - \* : 0.50 (0.75) Combination no. : 0 400 575 149AK Time to syl. no. : 1 Injection pump BASIC SETTING Pump designation : PE6A95D41OLS2450 EP type number : 0 410 696 989 1st speed rpm: 1150 Governor Governor design. : RSV300...1325A801002 Rack travel in mm: 9.30...9.40 Governer no. : 0 420 232 310 Del.quantity cm3/: 8.1...8.3 Customer-spec. information 100 s: (7.9...8.5) Customer : KHD Spread cm3 : 0.3Enaine : F6L413F 100 s: (0.6) 1st version kW : 118.0 2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Rated speed : 2650 TEST BENCH REQUIREMENTS Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm : 0.30...1.70 Test nozzle holder assembly : 0 681 343 009 Governor spring pre-tension Click setting x : ?Open in a : 172...175 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 014 rpm : 1150 Speed Del.quantity : 81.0...83.0 Outside diameter 1000 : (79.0...85.0) x Wall thickness cm3 : 3.50 Spread : 6.00x2.00x600 x Length mm 1000 : (6.00) (A) Injection pump setting values RATED SPEED

1st version Control lever position degrees: ?

Testing:

1st rack travel in: 8.30 rom : 1190...1200 Speed

2nd rack travel in: 4.00

Insp. values in parentheses Set equal delivery quant.

: 2.00...2.10

: (1.95...2.15)

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

rpm : 1215...1245 Speed 4th rack travel in: 1600

Speed rom : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

rpm : 520...580 rpm : 700 Speed

Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 850

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 76.5...79.5 1000 s: (74.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Note remarks

Test sheet : KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AL

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

L (20

Governer no. : 0 420 232 310

Customer—spec. information Customer : KHD

Engine : F6L413F

1st version kW : 112.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY
Test pressure, bar: 25...2

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1150

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 1190...1200

rpm : 1210...1240 Speed 4th rack travel in: 1600 rom : 0.00...1.00 Speed

LOW TOLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring Speed rpm : 300

Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

rpm : 520...580 rpm : 700 Speed

Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 9.00...9.10

rpm : 650 2nd speed

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 71.5...74.5 1000 s: (69.0...77.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed

rpm : 1190...1200

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

: 300 Speed rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

L18

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AM

Injection pump

Pump designation : PE6A95D41OLS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information

Customer

: KHD

Engine

: F6L413F

1st version kW

: 101.04

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1150

Rack travel in mm : 8.40...8.50

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread

cm3 : 0.3

100 s: (0.6)

inpin : 300.0 2rid speed

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 69.0...71.0 1000 : (67.0...73.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testina:

1st rack travel in: 7.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

L19

rpm : 1210...1240 Speed 4th rack travel in: 1600 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring mpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rpm : 520...580 rpm : 700 Speed Speed CIDM Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 8.40...8.50 2nd speed nom : 650 Rack travel in m: 8.90...9.00 3rd speed rpm : 850 Rack travel in m: 8.50...8.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 61.5...64.5 1000 s: (59.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.40 Speed rpm : 1190...1200 STARTING FUEL DELIVERY Speed rpm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40

Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

LOW IDLE

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AN

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer

Customer-spec. information : KHD

Engine

: F6L413F

1st version kW

: 113.0

Rated speed

: 2550

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 997 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1075

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.9...8.1

100 s: (7.7...8.3)

Spread

Spread

Speed

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1075

Del.quantity

: 79.0...81.0 1000 : (77.0...83.0)

Spread

cm3: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testina:

1st rack travel in: 8.30

Speed

rpm : 1115...1125

rpm : 1140...1170 Speed 4th rack travel in: 1600 Speed pom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 520...580
Speed rpm: 700 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1075 Rack travel in m: 9.30...9.40 2nd speed rpm : 650 Rack travel in m: 9.80...9.90 3rd speed rpm : 850 Rack travel in m: 9.40...9.60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/ : 76.5...79.5 1000 s: (74.0...82.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.30 rpm : 1115...1125 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks:

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Rack travel in mm : 14.00...14.40

Note remarks

Test sheet

: KHD **Fdition** : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149A0

Injection pump

Pump designation : PE6A950410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

: 0 420 232 310 Governer no.

Customer-spec, information Customer : KHD

Engine : F6L413F

: 105.0 1st version kW Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 33...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasina : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 8.90...9.00

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

: 74.0...76.0 Del.quantity

1000 : (72.0...78.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.90

rpm : 1090...1100 Speed

Speed rpm : 1100...1130 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 8.90...9.00

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 850

Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 69.5...72.5 1000 s: (67.0...75.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 7.90

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

L24

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AP

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

- 1

Governer no. : 0 420 232 310

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 90.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 8.10...8.20

Del.quantity cm3/: 6.3...6.5

100 s: (6.1...6.7)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1050

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.10

Speed rpm : 1090...100

Speed rpm : 1095...1125 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 5.5

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 rom : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 Speed rpm : 520...580 Speed rpm : 700

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 8.10...8.20

2nd speed rpm : 650

Rack travel in m: 8.60...8.70

3rd speed rpm : 850

Rack travel in m: 8.20...8.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 56.5...59.5 1000 s: (54.0...62.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 7.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm: 300 Rack travel in mm: 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

L26

Note remarks

Test sheet : KHO Edition : 31.6

Edition : 31.07.92 Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AQ

Injection pump

Pump designation : PE6A95D41OLS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no. : 0 420 232 310

Customer spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 96.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - \* : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

Speed rpm : 950...980 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point wout bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19 00 Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 520...580

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 650

Del.quantity cm3/: 69.5...72.5

1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm: 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 149AR Injection pump Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 Governor Governor design. : RSV300...1325A8C1002 Governer no. : 0 420 232 310 Customer-spec. information Customer : KHD Ergine : F6L413F 1st version kW : 107.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2Phasing : 0-75-120-195-240-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1075 Rack travel in mm : 9.00...9.10 Del.quantity cm3/: 7.7...7.9 100 s: (7.5...8.1) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1075 Speed : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 8.00 rpm : 1115...1125 Speed

2nd rack travel in: 4.00

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

Speed rpm : 1140...1170 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 21...29

Setting point w/out bumper spring rpm : 300 Speed

Rack travel in mm: 5.5

Testing: Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 300 Rack travel in mm : 5.40...5.60

Rack travel in mm: 2.00 rpm : 520...580 Speed Speed rpm : 700

Maximum rack trave: 1.00

TORQUE CONTROL Torque control curve - 1st version

1st speed rpm : 1075 Rack travel in m: 9.00...9.10

2nd speed rpm : 650

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 73.5...76.5 1000 s: (71.0...79.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.00

rpm : 1115...1125 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rom

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

MO2

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces :

Test oil : ISO-4113

Combination no. : 0 400 676 149AS

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

L

Governer no. : 0 420 232 310

Customer spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 100.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - \circ : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 8.90...9.00

Del.quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1

Deliquentity cm3/: 0.9...1.5

100 s: (0.6...1.7) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 73.0...75.0

1000 : (71.0...77.0) cm3 : 3.50

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 7.90

Speed rpm : 1040...1050

rpm : 1060...1090 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 rpm : 520...580 Speed Speed rpm : 700

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 8.90...9.00

2nd speed rpm : 650

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 70.5...73.5 1000 s: (68.0...76.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 7.90

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed nom : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

MO4

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AT

Injection pump

Pump designation: PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

: 0 420 232 310 Governer no.

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 90.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 8.30...8.40

Del.quantity cm3/: 6.5...6.7

100 s: (6.3...6.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rom : 300

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1000

: 65.0...67.0 Del.quantity

1000 : (63.0...69.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 7.30

Speed rpm : 1040...1050

Sceed rom : 1060...1090 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 300 rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 520...580 rpm : 700 Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 8.30...8.40 rpm : 650 2nd speed Rack travel in m: 8.90...9.00 3rd speed rpm : 850 Rack travel in m: 8.40...8.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 63.5...66.5 1000 s: (61.0...69.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.30 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

M06

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 150AA

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1000A7c1002

Governer no.

: 0 420 232 309

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

Rated speed

: 96.0 : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Phasing

: 0-75-120-195-240-315

: 1-6-5-4-3-2

Tolerance + - °

Firing order

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 980

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 980

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

2nd rack travel in: 4.00

**MO7** 

rom : 950...980 Speed 4th rack travel in: 1200

rpm : 0.30...1.70Speed

LOW IDLE 1 Control laver

position degrees: 24...32 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 rpm : 430...490 Speed

Speed rpm : 600 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 69.5...72.5

1000 s: (67.0...75.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 150AB Injection pump Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 Governor Governor design. : 0 420 232 309 Governer no. Customer—spec. information Customer : KHD Engine : F6L413F 1st version kW : 92.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

: RSV300...1000A7C1002 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 2.00...2.10 : (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2Phasing : 0-75-120-195-240-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 9.00...9.10 Del.quantity cm3/ : 7.0...7.2 100 s: (6.8...7.4) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed : 70.0...72.0 Deliquantity 1000 : (68.0...74.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 8.00 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 950...980 4th rack travel in: 1200 Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 24...32 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 300 Speed rom Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 430...490 rpm : 600 Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 9.00...9.10 2nd speed rpm : 650 Rack travel in m: 9.20...9.30 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/: 65.5...68.5 1000 s: (63.0...71.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.00 rpm : 940...950 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2 Note remarks Test sheet : KHD Edition : 31.07.92 Phasing : 0-75-120-195-240-315 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 400 676 150AC Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 1st speed rpm: 900 Governor Governor design. : RSV300...1000A7c1002 Rack travel in mm : 8.50...8.60 : 0 420 232 309 Governer no. Del.quantity cm3/: 6.2...6.4 Customer-spec. information 100 s: (6.0...6.6) Customer : KHD cm3 : 0.3Spread Engine : F6L413F 100 s: (0.6) 1st version kW : 83.0 Rated speed : 2000 2nd speed rpm : 300.0Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5 TEST BENCH REQUIREMENTS 100 s: (0.6...1.7) Test oil cm3 : 0.3 Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x :? **Opening** pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 014 Speed rpm : 900 Del.quantity : 62.0...64.0 Outside diameter 1000 : (60.0...66.0) x Wall thickness cm3 : 3.50 Spread x Length mm : 6.00x2.00x600 1000 : (6.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: ? BEGINNING OF DELIVERY

Testing:

Speed

1st rack travel in: 7.50

2nd rack travel in: 4.00

rpm : 940...950

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

rpm : 950...980 Speed 4th rack travel in: 1200

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 24...32

Setting point w/out bumper spring rpm : 300

Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00
Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00

rpm : 430...490 Speed

rpm : 600 Speed Maximum rack trave: 1.00

TORGUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 8.50...8.60

2nd speed rpm : 650

Rack travel in m: 8.60...8.70

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 59.5...62.5 1000 s: (57.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.50

Speed rpm : 940...950

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 14.00...14.40

Remarks:

M12

Note remarks

Test sheet : KHD

: 31.07.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 150AD

Injection pump

Pump designation : PE6A95D41DLS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1000A7C1002

: 0 420 232 309 Governer no.

Customer-spec, information Customer

Engine : F6L413F

: 77.0 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

: 69.0...71.0 Del.quantity 1000 : (67.0...73.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 8.20

rpm : 790...800 Speed

2nd rack travel in: 4.00

Prestroke mm

rpm : 815...845 Speed 4th rack travel in: 1200

Speed rpm : 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00 Speed rpm : 430...490 rpm : 600 Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 9.20...9.30

## BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.20 Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

Note remarks

Test sheet : KHD : 31.07.92 Edition

Replaces : ISO-4113 Test oil

Combination no. : 0 400 676 150AE

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1000A7c1002

: 0 420 232 309 Governer no.

Customer-spec, information Customer : KHD

: F6L413F Engine

1st version kW : 73.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - \* : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 8.80...8.90

Del.quantity cm3/: 6.3...6.5

100 s: (6.1...6.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 008 : mar Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 7.80

rpm : 790...800 Speed

Speed rpm : 810...840 4th rack travel in: 1200

rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00 rpm : 430...490 rpm : 600 Speed Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 8.80...8.90

## BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.80 Speed rpm : 790...800

## STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 173AA

Injection pump

Pump designation : PE6A95D410LS2587

EP type number

: 0 410 696 983

Governor

Governor design.

: RSV300...1150A8c1002

-1L

Governer no.

: 0 420 232 379

Customer

Customer-spec. information : KHD

Engine

: F6L413F

1st version kW

: 112.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.50...1.60

: (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasina

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 7.9...8.1

100 s: (7.7...8.3)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 79.0...81.0 1000 : (77.0...83.0)

Spread

: 3.50

cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.20

Speed

rpm : 1190...1200

2nd rack travel in: 4.00

M17

rpm : 1215...1245 Speed 3rd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1415 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 Speed rpm : 300
Rack travel in mm : 5.90...6.60
Rack travel in mm : 2.00 Speed rpm : 540...600 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Pack travel in m: 9.20...9.30 2nd speed rpm : 650 Rack travel in m: 9.80...9.90 3rd speed rpm : 850 Rack travel in m: 9.40...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 78.5...81.5 1000 s: (76.0...84.0) RACK STOP ADJUSTMENT Speed rpm : 500 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.20 rpm : 1190...1200 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

:

Remarks:

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 845 081AA

Injection pump

EP type number

Pump designation : PES5A95D410RS2417

: 0 410 895 993

Governor

Governor design. : RQV300...1250AB1211L

Governer no.

: 0 420 212 184

Customer-spec. information Customer

: KHD

Engine

: F5L413FR

1st version kW

: 112.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

**Opening** 

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

M19

Firing order

: 1-3-5-4-2

Phasing

: 0-72-144-216-288

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread

2nd speed

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 250

: 1.00...1.20 travel mm

rpm : 500 2nd speed

travel mm : 3.20...3.50

3rd speed : 1000 rpm

travel mm

: 6.20...6.40 rpm : 1250

4th speed travel mm

: 8.20...8.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1280 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed Del.quantity

rpm : 1250

: 95.0...97.0

1000 : (93.0...99.0)

cm3

: 3.50 1000 : (6.00)

RATED SPEED

1st version

Spread

Control lever position degrees: 116...124 Testing: 1st rack travel in: 8.70 rpm : 1290...1300 Speed 2nd rack travel in: 4.50 Speed rpm : 1340...1370 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 6.40...6.60 CONSTANT REGULATION Speed rpm : 365...480 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.70...9.80 2nd speed rpm : 600 Rack travel in m: 10.00...10.10 3rd speed rpm : 750 Rack travel in m: 9.80...10.00 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rom : 600 Speed Del.quantity cm3/: 88.5...91.5 1000 s: (86.0...94.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

2

Remarks:

M20

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 845 081AB

Injection pump

Pump designation : PES5A95D410RS2417

EP type number

: 0 410 895 993

Governor

Governor design.

: RQV300...1250AB1211L

Governer no.

: 0 420 212 184

Customer-spec, information Customer

Engine

: F5L413FR

1st version kW

: 109.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00

Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

M21

Firing order

: 1-3-5-4-2

Phasing

: 0-72-144-216-288

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 9.3...9.5

100 s: (9.1...9.7)

Spread

Spread

2nd speed

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm: 5.7...5.9

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0) cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.00...1.20 travel mm

2nd speed rpm : 500

: 3.20...3.50 travel mm

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

rpm : 1250

: 93.0...95.0

Del.quantity

1000 : (91.0...97.0)

: 3.50 cm3

1000 : (6.00)

1st version

RATED SPEED

Control lever position degrees: 116...124

Testing:

1st rack travel in: 8.50

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1340...1370

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 80...88

Rack travel in mm : 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 365...480

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.50...9.60

2nd speed rpm : 600

Rack travel in m: 2.80...9.90

3rd speed rpm : 750

Rack travel in m: 9.60...9.80

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 86.5...89.5

1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

M22

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 24.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 845 082AA Injection pump Pump designation : PES5A95D41ORS2680 EP type number : 0 410 895 972 Governor Governor design. : RQV300...1150AB1217L Governer no. : 0 420 212 186 Customer-spec. information Customer : KHD Engine : F5L413FRW : 79.0 1st version kW Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60 : (1.45...1.65) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2

Phasing : 0-72-144-276-288

Tolerance + - \* : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 7.80...7.90

hel.quantity cm3/: 6.6...6.8

100 s: (6.4...7.0)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.0)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
1st speed rpm :

ist speed rpm : 300 travel mm : 1.30...1.50

2nd speed rpm : 500

travel mm : 3.40...3.60

3rd speed rpm : 800

travel mm : 5.20...5.60 4th speed rpm : 1150

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1150

Del.quantity : 66.0...68.0

1000 : (64.0...70.0) cm3 : 3.50

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.80

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

rpm : 300 Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 7.80...7.90

2nd speed rpm : 700

Rack travel in m: 9.30...9.40

3rd speed rpin : 950

Rack travel in m: 8.60...8.80

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 73.5...76.5

1000 s: (71.0...79.0)

Speed rpm : 100 Del.quantity cm3/: 64.5...69.5 1000 s: (62.0...72.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 6.80

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 846 544AA Injection pump Pump designation : PES6A95D410RS2416 EP type number : 0 410 896 961 Governor Governor design. : RQV300...1250AB1211L : 0 420 212 184 Governer no. Customer-spec. information Customer : KHD Engine : F6L413FR 1st version kW : 134.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1.90...2.00

Rack travel in mm : 9.00...12.00

: (1.85...2.05)

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 9.70...9.80 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed : 1.00...1.20 travel mm rpm : 500 2nd speed : 3.20...3.50 travel mm 3rd speed rpm : 1000 travel mm : 6.20...6.40 4th speed rpm : 1250 travel mm : 8.20...8.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1280 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 : 96.0...98.0 Del.quantity 1000 : (94.0...100.0) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED

1st version

Prestroke mm

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.70

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm: 1340...1370 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 84...92

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.70...9.80

2nd speed rpm : 600

Rack travel in m: 10.00...10.10

3rd speed rpm : 750

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 88.5...91.5

1000 s: (86.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0

1000 s: (9.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

M<sub>2</sub>6

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : KHD : 31.07.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 544AB

Injection pump

Pump designation : PES6A95D410RS2416 EP type number : 0 410 896 961

Governor

Governor design. : RQV300...1250AB1211L

Governer no. : 0 420 212 184

Customer-spec. information Customer : KHD

Engine : F6L413FR

1st version kW : 127.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel to mm : 9.30...9.40

Del.quantity cm3/: 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 1.00...1.20 rpm : 500

2nd speed : 3.20...3.50 travel mm

rpm : 1000 3rd speed

: 6.20...6.40 travel mm

rpm : 1250 4th speed

: 8.20...3.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread : 3.50 cm3 1000 : (6.00)

RATED SPEED

1st version

M27

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.30

Speed rpm : 1290...1300

2nd rack travel in: 4.50

rpm : 1330...1360 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 84...92

Testing:

rpm : 100 Speed Minimum rack trave: 8.00

rpm : 300 Speed

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 9.30...9.40

rpm : 600 2nd speed

Rack travel in m: 9.60...9.70

3rd speed rpm : 750

Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0 1000 s: (9.5...20.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

M28

Note remarks

Test sheet

: KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no.

: 0 400 846 544AC

Injection pump

Pump designation : PES6A95D410RS2416

EP type number

: D 410 896 961

Governor

: RQV300...1250AB1211L

Governor design.

Governer no.

: 0 420 212 184

Customer-spec. information Customer : KHD

Engine

: F6L413FR

1st version kW

: 123.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

NO1

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 250

travel mm : 1.00...1.20

2nd speed 500 rpm

: 3.20...3.50 travel mm

3rd speed : 1000 mcgn

travel min

: 6.20...6.40

4th speed

man : 1250

travel mm

: 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1280

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Del.quantity

: 86.0...88.0

1000 : (84.0...90.0)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Spread

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.00

Speed rpm : 1290...1300

2nd rack travel in: 4.50

rpm : 1330...1360 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 84...92

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpin : 370...485 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.00...9.10

2nd speed rpm : 600

Rack travel in m: 9.30...9.43

3rd speed rpm : 750

Rack travel in m: 9.10...9.30

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 78.5...81.5 1000 s: (76.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0 1000 s: (9.5...20.5) Spread cm3 : 3.50 1000 s: (5.50)

:

Remarks:

NO2

Note remarks

Test sheet

: KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 544AD

Injection rump

Pump designation : PES6A95D41DRS2416 : 0 410 896 961 EP type number

Governor

Governor design. : RQV300...1250AB1211L

Coverner no. : 0 420 212 184

Customer-spec. information Customer : KHD

Engine : F6L413FR

: 117.0 1st version kw : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 8.70...8.81

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.00...1.20 travel mm

2nd speed rpm : 500

travel mm : 3.20...3.50

3rd speed rpm : 1000

: 6.20...6.40 travel mm

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

NO3

Control Lever

position degrees: 118...126

Testing:

1st rack travel in: 7.70

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1330...1360

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LCW IDLE 1

Control Lever

position degrees: 84...92

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

rpm : 300 Speed

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 8.70...8.80

2nd speed rpm : 600

Rack travel in m: 9.00...9.10 3rd speed rpm : 750

Rack travel in m: 8.80...9.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 74.5...77.5

1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70

Speed

rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0

1000 s: (9.5...20.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

N<sub>0</sub>4

Note remarks

Test sheet

: KHD

Edition

: 24,07,92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 846 545AA

Injection pump

Pump designation: PES6A95D410RS2681

EP type number

: 0 410 896 918

Governor

Governor design. : RQV300...1150AB1217L

Governer no.

: 0 420 212 186

Customer-spec. information Customer

: KHD

Engine

: F6L413FRW

1st version kW

: 96.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.50...1.60

Rack travel in mm : 9.00...12.00

: (1.45...1.65)

N<sub>0</sub>5

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 7.80...7.90

Del.quantity cm3/: 6.6...6.8

100 s: (6.4...7.0)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed travel mm

rpm : 300 : 1.30...1.50

2nd speed

rpm : 500

travel mm

: 3.40...3.60

3rd speed

rpm : 800 : 5.20...5.60

travel mm 4th speed

rpm : 1150

travel mm

: 7.80...8.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Del.quantity

Speed

Spread

Speed

rpm : 1150

: 66.0...68.0

1000 : (64.0...70.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.80

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 7.80...7.90

2nd speed rpm : 700

Rack travel in m: 9.30...9.40

: 950 rpm 3rd speed

Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 700 Del.quantity cm3/: 73.5...76.5

1000 s: (71.0...79.0)

rpm : 100 Speed

Del.quantity cm3/: 64.5...69.5

1000 s: (62.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.80

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.40...14.80

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

: 2300

Test oil

: ISO-4113

Combination no.

: 0 400 846 545AB

Injection pump

Pump designation : PES6A95D41ORS2681

EP type number

: 0 410 896 918

Governor

Governor design. : RQV300...1150AB1217L

Governer no.

: 0 420 212 186

Customer-spec. information Customer

: KHD

Engine

: F6L413FRW

1st version kw

: 86.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.50...1.60

: (1.45...1.65)

Rack travel in mm : 9.00...12.00

N07

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 7.30...7.40

Del.quantity cm3/: 6.0...6.2

100 s: (5.8...6.4)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

Spread

2nd speed

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.30...1.50 travel mm

2nd speed rpm : 500

travel mm : 3.40...3.60

3rd speed : 800 mqn;

: 5.20...5.60 travel mm

: 1150 4th speed rpm

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

: 60.0...62.0

Del.quantity

1000 : (58.0...64.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.30

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed : 100 rpm

Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 7.30...7.40

2nd speed rpm : 700

Rack travel in m: 8.70...8.80

rpm : 950 3rd speed

Rack travel in m: 8.00...8.20

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 64.5...67.5 1000 s: (62.0...70.0)

Speed rpm: 100 Del.quantity cm3/: 64.5...69.5 1000 s: (62.G...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.40...14.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

**80**M

Note remarks

Test sheet : KHD 6,1 m : 26.06.92 Edition Replaces : 9.86 Test oil : ISO-4113

Combination no. : 0 400 846 548

Injection pump

Pump designation : PES6A95D41ORS2715 EP type number : 0 410 896 911

Governor

Governor design. : RQV300...1250AB1158-

1L

: 0 420 212 188 Governer no.

Customer-spec. information Customer : KHD

Engine : BF6L913

1st version kW : 140.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 9.4...9.6

100 s: (9.2...9.8)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 300.0 2nd speed Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.8)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 0.80...0.90

2nd speed rpm : 600

travel mm : 3.60...3.90

3rd speed rpm : 900

travel mm : 5.20...5.40

4th speed rpm : 1200 travel mm : 7.80...7.90

5th speed : 1400 rpm

travel mm : 10.00...10.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1265

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 700

Del.quantity : 94.0...96.0

1000 : (92.0...98.0) : 3.50 cm3

Spread 1000 : (6.00)

N09

RATED SPEED

1st version Control Lever

position degrees: 119...127

Testina:

1st rack travel in: 13.00

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1400...1430

4th rack travel in: 1550

Speed rom : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 61...69

Testina:

Speed rpm : 100 Minimum rack trave: 6.50 rpm : 300

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 14.00...14.10

rpm : 500 2nd speed

Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 700

Rack travel mm : 14.00...14.10

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 390 Rack travel in m: 13.10...13.20 3rd pressure hPa : 245 Rack travel in m: 11.60...11.80

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm3/: 92.5...95.5 1000 s: (90.0...98.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 53.0...55.0

1000 s: (51.0...57.0)

RACK STOP ADJUSTMENT

Speed

rtm : 600

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm: 15.20...15.60

Remarks:

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

GMC-truck

N10

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : KHD Edition : 31.07.92 Phasing : 0-60-120-180-240-300 Replaces Test oil : ISO-4113 Tolerance + - \* : 0.50 (0.75) Combination no. : 0 400 846 568AA BASIC SETTING Injection pump 1st speed rpm: 1150 Pumo designation : PES6A95D41ORS2416 EP type number : 0 410 896 961 Rack travel in mm : 9.50...9.60 Governor Governor design. : RQV300...1150AB1211-Del. quantity cm3/: 9.3...9.5 11 : 0 420 212 217 Governer no. 100 s: (9.1...9.7) Customer-spec. information Spread cm3 : 0.3Customer : KHD 100 s: (0.6) Engine : F6L413FR-ALLG. rpm : 300.02nd speed 1st version kW : 124.0 Rack travel in mm: 6.6...6.8 : 2300 Del.quantity cm3/: 1.2...1.8 Rated speed 100 s: (0.9...2.0) TEST BENCH REQUIREMENTS cm3 : 0.3 Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 419 992 198 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Inlet press., bar: 1.50 1.20...1.30 travel mm 2nd speed 325 rpm : Test nozzle holder travel mm : 1.70...1.80 : 0 681 343 009 assembly 3rd speed : 375 rpm travel mm : 2.50...2.60 Opening 4th speed : 1265 rpm : 172...175 pressure, bar : 9.40...9.60 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1150 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1150 per values Del.quantity : 93.0...95.0 1000 : (91.0...97.0) BEGINNING OF DELIVERY : 3.50 Spread cm3 Test pressure, bar: 25...27 : (6,00) 1000

RATED SPEED

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 8.50

Speed rpm : 1190...1200

2nd rack travel in: 4.50

Speed **rpm** : 1240...1270

4th rack travel in: 1370

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 83...91

Testing:

Speed : 200 rpm Minimum rack trave: 10.30 Speed : 300 rpm

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.50...9.60

2nd speed rpm : 650

Rack travel in m: 9.70...9.80

3rd speed rpm : 300

Rack travel in m: 9.50...9.70

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

N12

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 846 568AB

Injection pump

Pump designation : PES6A95D410RS2416

EP type number

: 0 410 896 961

Governor

Governor design.

: RQV300...1150AB1211-

1L

Governer no.

: 0 420 212 217

Customer

Customer—spec. information : KHD

Engine

: F6L413FR-ALLG.

1st version kW Rated speed

: 112.0 : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 8.90...9.00

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 300 : 1.20...1.30

travel mm : 325

2nd speed rpm

travel mm : 1.70...1.80

3rd speed rpm : 375

: 2.50...2.60 travel mm rpm

4th speed

: 1265

travel mm

: 9.40...9.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed

rpm : 1150

Del.quantity

: 83.0...85.0 1000 : (81.0...87.0)

Spread cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 116...124 Testina: 1st rack travel in: 7.90 rpm : 1190...1200 Speed 2nd rack travel in: 4.50 Speed rpm : 1240...1270 4th rack travel in: 1370 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 83...91 Testina: rpm : 200 Speed Minimum rack trave: 10.30 rpm : 300 Speed Rack travel in mm : 6.60...6.80 CONSTANT REGULATION Speed rpm : 310...450 TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 8.90...9.00 2nd speed rpm : 650 Rack travel in m: 9.10...9.20 3rd speed inpm : 800 Rack travel in m: 9.00...9.20 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 77.5...80.5 1000 s: (75.0...83.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 7.90

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm: 100

N14

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

.

Note remarks

Test sheet

: KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 568AC

Injection pump

Pump designation : PES6A95D41ORS2416 : D 410 896 961

EP type number

Governor

Governor design. : RQV3C0...1150AB1211-

11

: 0 420 212 217 Governer no.

Customer-spec. information

Customer : KHD

Engine : F6L413FR-ALLG.

: 118.0 1st version kW Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.30 travel mm

: 325 2nd speed rpm

travel mm : 1.70...1.80

3rd speed rpm : 375

: 2.50...2.60 travel mm

4th speed : 1265 rpm

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed : 1150 rpm

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

N15

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 8.20

rpm : 1190...1200 Speed

2nd rack travel in: 4.50

rpm : 1240...1270 Speed

4th rack travel in: 1370

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 83...91

Testing:

Speed rpm : 200 Minimum rack trave: 10.30 nom : 300

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.20...9.30

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 800

Rack travel in m: 9.20...9.40

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

N16

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

Note remarks

: IHC 7,6 y 1 : 24.07.92 Test sheet Edition : 03.92 Replaces Test oil : ISO-4113

Combination no. : 0 400 846 580

Injection pump

Pump designation : PES6A95D32ORS2779 EP type number : 0 410 896 903

Governor

Governor design. : RQV350...1350AB1248-

1R

: 0 420 213 121 Governer no.

Customer-spec. information Customer : NAVISTAR

: DTA 360 Engine

1st version kW : 138.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 110 assembly

Opening

: 250...253 pressure, bar

Orifice plate

diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance  $+ - \circ : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.7...2.1

100 s: (1.5...2.3)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed man

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350 Speed Aneroid pressure h: 900

Del.quantity : 85.0...89.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testino:

1st rack travel in: 11.40

Speed rpm : 1400...1430

2nd rack travel in: 4.00

rpm : 1535...1545 Speed

4th rack travel in: 1625

 $c_0.1...00...1.00$ Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 350...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 morn hPa : 900 Pressure

Rack travel mm : 12.40...12.50

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 215

Rack travel in m: 10.80...10.90

3rd pressure hPa : 345

Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min: 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 71.0...75.0

1000 s: (69.0...77.0)

**BREAKAWAY** 

N18

1st version

1mm rack travel less than

full load rack tr: 11.40

rom : 1400...1430 Speed

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 130.0...170.0 1000 s: (125.0...175.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 17.0...21.0 100C s: (15.0...23.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: NAVISTAR #1818796091

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : IHC 7,6 z 1
Edition : 24.07.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 400 846 603

Injection pump

Pump designation : PES6A95D32ORS2779 EP type number : 0 410 896 903

Governor

Governor desfign. : RQV/350...1350AB1251-

1R

Governer no. : 0 420 213 125

Customer-spec. information Customer : NAVISTAR

Engine : DT 360

1st version kW : 142.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - \* : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1350 Aneroid pressure h: 900

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50 1000 : (6.00)

1000 . (0.00

RATED SPEED

N19

1st version Control Lever position degrees: 44...52 Testing. 1st rack travel in: 11.30 Speed rpm : 1400...1430 2nd rack travel in: 4.00 rpm : 1535...1545 Speed 4th rack travel in: 1625 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 10...18 Testing: Speed : 100 rpm Minimum rack trave: 9.00 Speed : 350 rpm Rack travel in mm : 5.80...6.00 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version : 1350 1st speed rpm Rack travel in m: 12.30...12.40 2nd speed rpm : 850 Rack travel in m: 13.10...13.20 3rd speed rpm : 1200 Rack travel in m: 12.70...12.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 900 Pressure Rack travel mm : 13.10...13.20 Measurement 1/min : 500Speed 1st pressure hPa : -Rack travel in m: 9.40...9.60 2nd pressure hPa : 230 Rack travel in m: 10.30...10.40 3rd pressure hPa : 525 Rack travel in m: 12.10...12.50 START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed : 850 rpm Del.quantity cm3/: 96.0...100.0 1000 s: (94.0...102.0) cm3 : 5.00Spread 1000 s: (7.00) Amenoid pressure h: -Speed rpm : 500 Del.quantity cm3/: 66.0...70.0 1000 s: (64.0...72.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1400...1430 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5) Spread cm3 : 3.501000 s: (5.50) Remarks: : NAVISTAR #1818798091 Limit shutoff stop screw to 1.0 mm. Start-of-delivery mark is at start of delivery of cylinder 1

Note remarks

Test sheet : INC

: 24.07.92 Edition

Replaces : 04.92 Test oil : ISO-4113

Combination no. : 0 400 846 606

Injection pump

Pump designation : PES6A95D32DRS2779 EP type number : 0 410 896 903

Governor

Governor design. : RQV350...1200AB1256~

8R

: 0 420 213 127 Governer no.

Customer-spec, information Customer : NAVISTAR

Engine : DT 466

1st version kW : 145.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 110 assembly

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75 : (2.60...2.80)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1400 1st speed

travel mm : 8.60...9.00 rpm : 1250 2nd speed

travel mm

: 7.30...7.50

3rd speed rpm : 550

: 3.10...3.70 travel mm

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Aneroid pressure h: 900

Del.quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 12.10

rpm : 1255...1285 Speed

2nd rack travel in: 4.00

rpm : 1400...1410 Speed

4th rack travel in: 1525

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 11...19

Testina:

rpm : 100 Speed

Minimum rack trave: 9.00

rpm : 350 Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 350...500 Speed

Ameroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

Pressure hPa : 900

: 13.10...13.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 225

Rack travel in m: 10.50...10.60

3rd pressure hPa : 460

Rack travel in m: 11.90...12.30

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Det.quantity cm3/ : 67.0...71.0 1000 s: (65.0...73.0)

**BREAKAWAY** 

N22

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1255...1285 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: NAVISTAR #1819325091

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : CUM 8,3 t 9
Edition : 21.05.92
Replaces : 09.91

Replaces : U9.91 Test oil : ISO-4113

Combination no. : 0 400 866 129

Injection pump

Pump designation : PES6A100D320/3RS2763

EP type number : 0 410 806 006

Governor

Governor design. : RSV400...1100A0C2190

-27R

Governer no. : 0 420 233 225

Customer—spec. information Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 111.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread cm3: 0.4

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.6 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 88.0...90.0 (86.0...92.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

N23

1st rack travel in: 8.70

Speed rpm : 1145...1155

2nd rack travel in: 4.00

rpm : 1230...1240 Speed

3rd rack travel in: 4.00

Speed rpm : 1225...1255

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 35...43

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 4.5

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.70...9.80

rpm : 750 2nd speed

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 96.5...100.5 1000 s: (94.5...102.5)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1145...1155

STARING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...16.0

1000 s: (9.5...18.5)

Spread

cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3915973

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

N24

Note remarks

Test sheet : KHD 6,1 w 1 : 26.06.92 Edition Replaces : 08.91 Test oil : ISO-4113

Combination no. : 0 400 866 173

Injection pump

Pump designation : PES6A85D410/3RS2611

EP type number : 0 410 886 902

Governor

Governor design. : RSV325...1200A0c2148

-1L

Governer no. : 0 420 232 567

Customer-spec. information Customer : KHD

Engine : F6L913 H

1st version kW : 85.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 6.1...6.2

100 s: (5.9...6.4)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 325.02nd speed Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.2 Spread 100 s: (0.4)

**GUIDE SLEEVE POSITION** Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 61.5...62.5 Del.quantity

1000 : (59.5...64.5) cm3: 3.00

Spread 1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 100...108

Testina:

1st rack travel in: 9.40

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1460

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 8.5 Speed rpm : 325 Rack travel in mm : 8.40...8.60 Rack travel in mm : 2.00 Speed rpm : 440...500 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 10.40...10.50 nd speed rpm : 500 Rack travel in m: 11.00...11.20 2nd speed rpm : 800 3rd speed Rack travel in m: 11.00...11.20 4th speed rpm : 1050 Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpa : 800 Dec.quantity cm3/: 54.0...56.0 1000 s: (51.5...58.5) Speed rpm : 1050 Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 Speed rpm : 1240...1250 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) Rack travel in mm : 17.60...18.00 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CAS 4,9 a 1 : 29.07.92 Test sheet Edition Replaces : 01.08.89 Test oil : ISO-4113 Combination no. : 0 400 874 160 Injection pump Pump designation : PES4A85D420LS2263 Governor Governor design. : RSV375...1000A2B547D Customer-spec. information Customer : CASE Engine : A 301 BD TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : WS 187P (CASE) Inlet press., bar: 1.5 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm

: 2,15...2,25 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order

Phasing : 0-90-180-270 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,35...4,55

100 s: (-)

rpm : 200 2nd speed

Rack travel in mm: 6,00 Del.quantity cm3/: 1,15...1,75

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 70,0...71,0 Del.quantity

1000 : (69,0...72,0)

RATED SPEED

1st version Control Lever

position degrees: 37...45

Testing:

1st rack travel in: 11.20 Speed rpm: 1030...1050 2nd rack travel in: 5,60 Speed rpm: 1065...1095

4th rack travel in: 1200

Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 375 Rack travel in mm: 7,50

Testing:

Speed rpm : 150 Minimum rack trave: 19,00 rpm : 375

Rack travel in mm : 7,40...7,60

Rack travel in mm: 4.00 rpm : 450...470 Speed : 600 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 9,00 2nd speed rpm : 800 Rack travel in m: 9,80...9,90 3rd speed rpm : 400 Rack travel in m: 10,50...10,70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 85,5...88,5 1000 s: (84,5...89,5) Speed rpm : 500 Del.quantity cm3/: <89,5 1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8,00 rpm : 1040...1055 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 124,0...135,0 1000 s: (-) HIGH IDLE 1st version rpm : 1090 Speed Del.quantity cm3/: 9,5...17,5 1000 s: (-) LOW IDLE Speed rpm : 375 Del.quantity cm3/ : 15,5...19,5 1000 s: (-) Remarks: